

FLIGHT

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AIRCRAFT ENGINEER
AND AIRSHIPS

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1930	
Feb. 7	... British Empire League Luncheon to Lord Thomson, at British Empire Club, 12, St. James's Square.
Feb. 8	... Rugby Football: Royal Air Force v. Royal Navy, at Twickenham.
Feb. 13	... "Recent Work on the Autogiro." Lecture by Senor J. de la Cierva before R.Ae.S.
Feb. 19	... "Gliding." Lecture by Dr. Walter Georgii before R.Ae.S.
Feb. 27	... "Latest Developments of Aero Engines." Lecture by Mr. A. J. Rowledge before R.Ae.S.
Mar. 5	... "Air Co-Operation with Mechanised Forces." Lecture by Wing-Com. T. L. Leigh-Mallory before Royal United Service Institute.
Mar. 6	... "Resistance of Air-Cooled Engines and the Townsend Ring." Lecture by Maj. F. M. Green and Mr. H. C. H. Townsend before R.Ae.S.
Mar. 10	... "Air Transport." Lecture by Herr M. Wronsky before R.Ae.S.
Mar. 27	... British Gliding Association Inaugural Meeting.
April 3	... "Operation of the Aero-Postale Service in Europe." Lecture by M. P. Grimault before R.Ae.S.
May 31	... City of Bristol Air Pageant.
June 21	... Air Rallye at Haldon Aerodrome, Teignmouth.
June 28	... Royal Air Force Display, Hendon.

EDITORIAL COMMENT



THE Fédération Aéronautique Internationale has now approved the recommendations of the Royal Aero Club of the United Kingdom as regards the regulations for the Schneider contest of 1931. It has been decided to abolish the tests for navigability and watertightness and merely to hold tests for getting off and alighting, just before the speed contest. The whole of the contest is to be held on one day. In addition, clubs entering will be required to deposit with the Royal Aero Club 200,000 French francs per aircraft as a guarantee of participation.

The New Schneider Rules

These recommendations were put forward by the Royal Aero Club as a result of experiences in recent contests, and their adoption by the F.A.I. shows that they have met the views of at least the majority of possible competitors. Of recent years the Schneider contest has reached an anomalous position. It has become a compromise between two points of view which could not be reconciled. Probably it is now impossible by any new regulations to reduce the contest to a simple and logical position. There will always remain the original ideas of the donor, expressed in 1913, which contemplated a contest between practical, seaworthy seaplanes; and the recent ideas of the world at large, which regard the race as the greatest of all trials of speed. These two points of view are irreconcilable. The best that can be done is to weight one scale of the balance down against the other, necessarily giving the preference to the modern view. The new regulations are a definite move in that direction. As such, they are to be commended as timely and judicious.

The present position has been summed up by the pronouncements of the Air Ministry and of Colonel Bernasconi, the commandant of the Italian Schneider team. Col. Bernasconi is reported to have said that he was doubtful if Italy would think it worth her while to enter again for the Schneider. There were, he said, too many hampering restrictions. The Air Ministry, on the other hand, in announcing that it

would not enter a service team for the next contest, stated that the contest had now developed on lines not contemplated by the donor of the trophy, and that while the entries by the R.A.F. had been an impetus to research in high-speed flying, the Ministry was now satisfied with the amount of research achieved. So we see that the Schneider is variously regarded as a stimulus to research which has now achieved its object, and as a criterion of high speed which fails to achieve its object. Italy, apparently, complains that the conditions laid down by the donor have to be fulfilled: Great Britain deplores that the ideas of the donor are no longer respected. In fact, it would seem that the most satisfactory thing which could happen would be for Great Britain to win the trophy in 1931 and so keep it for good. Then everyone could make a fresh start, and there could be separate contests for high-speed machines and for practical seaplanes. But in the meantime we must do the best that we can with the Schneider.

There can be little doubt that when the late M. Jacques Schneider presented his trophy to the Aero Club of France, he can have had no idea of provoking world speed records. If, in 1913, he had been thinking of such a thing, he would surely have made his contest one for landplanes. What he wanted undoubtedly was to encourage sound, seaworthy seaplanes. Seaworthiness and navigability were main planks in his programme. Among seaplanes which proved their possession of these qualities, and among such only, the race was to the swift. In that spirit the first three contests were carried out. At Bournemouth in 1919 the machines had to alight and take off so many times in the course of the race. This ruled out any question of speed records. These regulations should have made a fine seaplane race and one which (in clear weather) would have been most interesting to watch. Flying-boats took part in the contest even up to 1925 at Baltimore.

One almost regrets that the regulations of 1919 were not made the general rule for all future contests. Still, we have, after much delay developed sound seagoing flying-boats without the stimulus of an international contest; while, without the Schneider, we should certainly not have achieved a speed of 357 m.h.p. And now our high-speed records must needs be made with seaplanes because of the high landing speed—an outcome which would doubtless have surprised M. Schneider if, in 1913, a prophet could have foretold it.

It was, as we all know, the Navy Department of the United States Government which, by its entry and win at Cowes in 1923, transformed the character of the contest. Thenceforth flying-boats were to have no chance of winning. Seaworthiness became a secondary consideration. Speed was to be the dominant factor. Everyone who was at Cowes in 1923 will remember how the British partisans prayed for rough weather on the day of the navigability trials, as they thought that the Supermarine "Sea Lion" boat would live in a sea which would smash the floats of the Curtiss machines. But British weather for once let the British down. The

sun shone and the Solent was calm. As we sadly said goodbye for four years to the beautiful trophy, we realised that for the future the stoutness of British hulls, on which we had so prided ourselves, would no longer play an important part in Schneider contests. Speed was to be the keynote of the future.

Rittenhouse has been followed by Doolittle, Bernardi, Webster, and Waghorn. Each name has spelt a new record in speed, but also has gone with a type of seaplane which was less and less useful for sea work, and more and more of a racing freak. It is beside the point to remark that the floats of the S6, if stripped of tanks and radiators, are better floats than those on some service types. We have accepted the fact that the Schneider contest is the world's criterion of speed, and we cannot go back from that. In fact, we must sympathise with Col. Bernasconi's complaint that, owing to the deed of gift, some hampering restrictions still cling to this greatest of all speed contests. The deed of gift cannot be abolished. All that we can do is to cut down to a minimum the seaworthiness tests, and that is what the Royal Aero Club has proposed and what the F.A.I. has sanctioned. It is too late to regret the practical disappearance of one of the old features of the contest. The regret which was natural and proper in 1923, when the change began to take place, would be futile in 1931. *Tempora mutantur, et nos mutamur in illis.*

For several years past, the day devoted to the tests in seaworthiness has been regarded by everyone as little better than a nuisance. It has not produced what M. Schneider presumably intended these tests to produce, and it has caused embarrassment to some competitors. It led to the elimination of Hinkler in 1925, and it caused some fear of Webster being disqualified in 1927. It uses up one day of fine weather, and even in Venice one cannot always count on two successive fine days. No machine, so far as we can remember, which has passed the tests for getting off and alighting, has failed to pass the mooring-out test. Therefore the logical thing to do was either to insist on seaplanes which could live in a sea as heavy as that which wrote off the undercarriage of Hinkler's Gloster 3, or abolish the six hours' mooring test altogether. The Royal Aero Club and the F.A.I. have chosen the latter alternative, and their common sense must be approved. The minimum will now be done in complying with the deed of gift and the maximum of attention will be frankly bestowed on the speed trial.

The whole affair will now be got through in one day, and that is no small gain. For one thing, the interests of the spectators have to be considered, and to hold the getting-off tests just before the race will give the crowds more to watch. They will see the seaplanes on the water as well as in the air, and this will add greatly to the attractions of the day. There are few prettier sights than seaplanes taking off and alighting. But the main point is that if only one suitable day occurs as a break in a spell of typical British weather, that day will not have to be wasted on what has become little more than a tiresome formality.

England-New York at 767 m.p.h.

AIR VICE-MARSHAL SIR SEFTON BRANCKER, Director of Civil Aviation, speaking at a luncheon at the Aldwych Club on January 28, said that in less than 100 years man had developed transport from the speed of a galloping horse to

over 300 miles an hour. Scientists told us there was now no reason why, sooner or later, we should not be able to travel as fast as sound. Possibly, therefore, in 20 years or so, one would be able to leave England at tea-time and arrive in New York for luncheon on the same day.

A VERY REMARKABLE AEROPLANE

The New De Havilland "Moth III" has an Excellent Performance

"CENTRE-SECTIONITIS" is a word coined by Mr. Walker, of the De Havilland Aircraft Co., to denote the harmful effects which a disturbance of the airflow over the middle portion of a wing may have on the lift and drag of an aeroplane wing. In the "Moth III," a new monoplane produced by the de Havilland Company, "centre-sectionitis" appears to have been reduced to a very remarkable extent. So far only the experimental machine has been produced and flown, but work on the production

type has now commenced, and the first production machine will probably be out in about a month's time. This will differ in certain relatively minor respects from the experimental model, although the changes will not be obvious except upon fairly close inspection.

The "Moth III" is a high-wing, strut-braced monoplane, with *conduite interieure* and fitted with an inverted "Gipsy" engine. The engine power is the same as that of the standard Gipsy-Moth, and the gross weight of the "Moth III" is not



An unusual and—as yet—unfamiliar physiognomy: The use of an “inverted” Gipsy engine in the new de Havilland “Moth III” has resulted in a nose which looks a good deal like a heron, what with the low position of the head and the raised shoulders. The machine is probably one of the most efficient, aerodynamically, produced so far, having a top speed some 20 m.p.h. higher than that of the ordinary Gipsy-Moth.

(FLIGHT Photo.)



greatly different from that of the standard machine. In spite of this fact, however, the “Moth III” is something like 20 m.p.h. faster than the “Gipsy-Moth,” a fact which indicates that the minimum drag of the new monoplane is very much lower than that of the older machine. This cannot be accounted for entirely by the change from biplane to monoplane. In fact, by the usual method of taking drag coefficients for the various parts of the machine and adding them together to get the total drag, there would be no reason for expecting such a remarkable increase in performance. The reduction in drag must be largely an “interference effect,” and its results are of outstanding interest. Reference has already been made to the fact that the top speed is something like 20 m.p.h. greater than that of the “Gipsy-Moth.” This means, of course, that the cruising speed is approximately the same as the top speed of the “Gipsy-Moth,” so that the new type will probably be able to cruise at something over 100 m.p.h. at a fuel consumption of rather more than 20 miles

per gallon. To anyone who does a good deal of touring this figure is of very great importance and should help to make touring by air a good deal cheaper than it already is.

It is not intended here to give a detailed description of the new “Moth III.” This we hope to give when the production machines are beginning to come along. In the meantime, however, it is worth recording that the whole of the lay-out of the general arrangement of this machine was done by Capt. de Havilland himself, and not until small details came to be considered did he hand some of the work over to others. Thus the success which the “Moth III” is bound to achieve will be entirely due to “D.H.,” who designed the machine solely to please himself and as his own idea of what the private owner's machine ought to be like. The fact that he has come closer than almost anyone else to Prof. Melvill Jones's “Ideal streamline aeroplane” will be a source of satisfaction to all admirers of this pioneer designer's work. A detailed illustrated description will be published in a few weeks.



Easy access and good view are the two outstanding features of the new de Havilland “Moth III.” The position of the fuselage over the ground is very low, and the occupants can step straight into the cabin. Large windows and a transparent roof give an airy impression as well as a good view.

(FLIGHT Photo.)

I. L. I. S.

The Stockholm International Aero Show

September 6-28, 1930

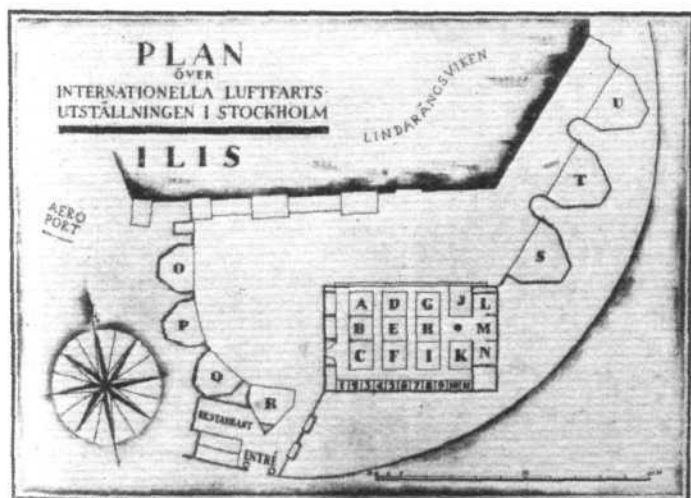
UNDER the patronage of H.R.H. the Crown Prince of Sweden, an international aero exhibition will be held from September 6 to September 28, in Stockholm. The site chosen for the exhibition is the Stockholm Air Port, and is so situated that some of the exhibited machines can be taken out of the exhibition and flown for demonstration purposes. This applies more particularly to machines of the seaplane type, and a part of the exhibition will be housed in tent hangars on each side of the main hall, where, if exhibitors desire, the machines can easily be transported down to the water. The hangars in which the seaplanes required occasionally for demonstration purposes are to be housed are shown at O, P, Q, R—S, T, U, in the sketch plan below.

The exhibition, which will be officially known as the I.L.I.S. (from the initial letters of its Swedish title *Internationella Luftfartsutställningen i Stockholm*) is being organised by the Royal Swedish Institute for Scientific Industrial Research and the Swedish Royal Aero Club, with Major-General K. A. B. Amundson, Chief of the Swedish Air Force, as chairman.

The I.L.I.S. will include the usual aviation material, from aircraft and aero engines down through equipment, raw materials, air transport and aerodrome equipment, air survey equipment and research materials and equipment, to historical material and aviation literature.

The charges for space have been fixed as follows: On the aircraft stands, less than 200 sq. m.; 20 Swedish Crowns (£1 2s. 1d.) per sq. m. From 200 to 300 sq. m., 18 Crowns (19s. 10d.) per sq. m. Above 300 sq. m., 16 Crowns (17s. 8d.) per sq. m. For aero engine stands the charges are: Less than 100 sq. m., 30 Crowns (£1 13s. 1d.) per sq. m. More than 100 sq. m., 27 Crowns (£1 9s. 10d.) per sq. m. For the other stands the charges are: For less than 50 sq. m., 25 Crowns (£1 7s. 7d.) per sq. m. Above 50 sq. m., 22-50 Crowns (£1 4s. 10d.) per sq. m. The smallest space let will be 10 sq. m.

Application for stand space should be made before May 15, 1930, and one-half of the fee must accompany the application. The balance must be paid in before 12 noon on September 4.



Sketch Plan of I.L.I.S. The tent hangars O, P, Q, R—S, T, U, are reserved for machines which are to be demonstrated during the Show.

Prospective exhibitors of aircraft are warned that no explosive or highly inflammable substance may be exhibited, although celluloid or similar material may be permitted if it forms a necessary part of the exhibits, but the exhibitor must provide fire protection which has been approved by the committee. Aircraft may, at the discretion of the committee, be exhibited in such a way that portions of machines, such as wings, etc., overhang the gangways, but the lowest point of such projections must be at least 2.5 m. (8.2 ft.) above the floor level. It is also pointed out that as a rule aircraft may not be mounted upon any temporary structure which exceeds a height of 1.5 m. (4.92 ft.).



I.L.I.S.: An Artist's idea of how the Stockholm Aero Show will appear from the air.

The location of the Stockholm Exhibition is unique in that it is actually a section of the Stockholm Air Port. This is, as far as we recollect, the first time that this has been the case, and should be a weighty argument in favour of exhibiting. In modern times potential purchasers of aircraft are not content with seeing a machine in the exhibition and then having to travel possibly miles to an aerodrome or seaplane base in order to see the machine perform. Yet in all previous shows that is what has happened. At Stockholm, however, it will be possible to have a machine either on the aerodrome or moored in Lindarängsviken in the case of a seaplane, and demonstrations will be possible almost at any time. Even the actual machines exhibited, provided space is taken in one of the tent hangars, may be removed for demonstration purposes.

Another advantage of the location chosen for the I.L.I.S. is that transport expenses should, in the case of complete aircraft, be reduced to a minimum, as the machines can be flown straight to the aerodrome or seaplane harbour, and taken into the exhibition buildings with relatively little trouble or delay. The fact that the regular Air Port of Stockholm adjoins the exhibition buildings will facilitate visits by air travellers, who are able to proceed direct to the show by the machines of the Swedish air transport company working on this section of the European air transport network of lines. Thus the exhibition is in very direct aerial communication with the whole of Europe.

It is intended to hold during the exhibition an aircraft display and a certain number of flying competitions, as well as to arrange for visits by foreign aircraft. In view of the professed willingness of the Air Ministry to assist British manufacturers in the matter of obtaining orders from abroad, it is to be hoped that one or more R.A.F. squadrons will be sent to Stockholm during the exhibition.

Although it is not to be expected that the Stockholm Aero Show will be on a scale to equal those of Paris and Berlin, it should be very well worth while to exhibit British machines, more particularly perhaps British light 'planes, both landplanes and seaplanes. Stockholm is ideally situated for the purpose of demonstrating the latter, and the exhibition should provide a unique opportunity to show what British light 'planes of modern design can do. It is a foregone conclusion that Germany will be strongly represented, and probably France and Italy also, not to mention Czechoslovakia, so that Great Britain cannot afford to disregard this opportunity to show her latest types. It should also be remembered that by the time the show opens, the International Touring Contest will be but recently concluded, and as this contest takes in most of the European countries, interest in the light 'plane will be considerable.

Intending exhibitors should communicate with the secretary of the exhibition committee at Kungsgatan, 33, Stockholm, for further particulars.



PROFITING BY AIRCRAFT

(Concluded from page 166)

IN Malaya the main base was at Port Swettenham, where photographic rooms and offices were provided by the courtesy of the Port Officer, while the seaplane was housed on a rubber plantation nearby, adjoining very suitable sheltered water. The manager of the plantation, Mr. Oliver, who went out of his way to do everything possible for the survey party, became an air enthusiast as the result of the visit, and has since learned to fly and proposes to run his own seaplane in future. In the meantime, the main party was at work on an important contract of surveying the forested hills in the Chittagong district of Bengal. This was completed in the spring of 1927. The area, however, was considerably increased to something over 1,000 square miles, and eventually extended into cultivated lands adjoining the hill tracts, when 1,300 square miles were photographed. The survey was required by the Settlement authorities as well as the Forest Department, and the cost was borne jointly by both departments. It is often difficult to get Government departments to work together in this way, and this was a step in the right direction.

Every survey that is made is eventually used for many purposes, but only too often it is found that the department that has most urgent need of it has to pay for the entire work. And since air surveys are completed so rapidly it may mean a heavy expenditure in one year which may result in an almost essential scheme being rejected.



An aerial view of the Legislative Assembly Chamber of the United Provinces Government at Lucknow

The Chittagong Survey, however, proved an exception: the areas were mixed forest, grass and cultivation. The grass areas were of exceptional value from a revenue point of view as the grass was of the kind greatly in demand for building native dwellings.

Maps were made again on a scale of 4 ins. to 1 mile.

This survey extending into cultivated lands led to the investigation of the suitability of air survey taking the place of the usual methods for the much needed cadastral or revenue surveys in India. Tests were put through with satisfactory

results, and a new and experimental contract was arranged to map an area of 1,600 square miles in Bengal on a scale of 16 ins. to 1 mile. This work was commenced in the winter of 1928, and since it was the first attempt to map an extensive area by air survey on so large a scale, it resulted in a year of intensive research.

Work in India increased about this time to an extent which warranted a permanent air survey establishment being set up in Calcutta, which resulted in the formation of Indian Air Survey & Transport, Ltd., at Dum Dum. This company's work has increased rapidly, mainly as a result of the improved methods evolved, especially for cadastral mapping which gives an immense saving in time and enables the revenue authorities to bring their Settlement programme up to date.

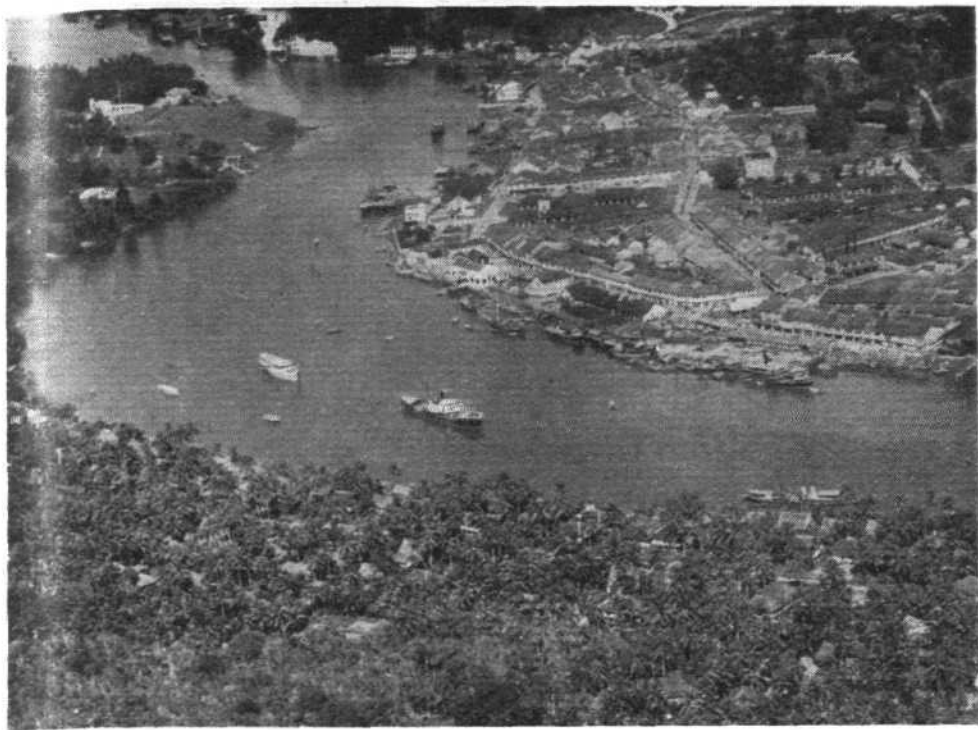
In the winter season of 1928-29, a most successful cadastral survey was undertaken for the United Provinces Government of an area of some 3,000 square miles, situated mainly in the districts of Sitapur and Fyzabad.

A large portion of the ammunition factory at Dum Dum has been taken over by Indian Air Survey & Transport, Ltd., as storerooms, a repair depot, drawing offices, photographic rooms and map printing. A staff of over 250 are employed, the bulk of whom are engaged in compiling cadastral maps.

A staff of this size seems at first sight to be very large for



This view and that on the opposite page are good examples of the difference between European and Indian towns when seen from the air. This is the centre of Liverpool, and the way the railway leads out of the City under the buildings is seen clearly.



Kuching, the capital of Sarawak.

the area surveyed, but it must be remembered that the work entailed increases almost with the square of the scale. The United Provinces Contract would, in the ordinary way, have taken about five years to complete. In that contract alone there were 17,500 photographs taken, for each photo has to overlap the next in the strip by 60 per cent., so that although each photo may cover a good deal of country, not a great deal of new ground is broken with each exposure. In the photographic rooms, enlargements measuring 18 ins. square are made from each negative, and these show the exact boundaries and nature of each man's holding.

In addition to cadastral surveys last year, the Air Survey Company's Indian concern surveyed nearly 2,000 square miles of riverine country for both irrigation and railway authorities. Owing to the annual changes in the courses of the bigger Indian rivers, this work is recurring and the air parties are again busy on this kind of survey this season.

Not only is it possible to map out the course of a river from the photographs, but an immense amount of additional data may be obtained. For instance new banks can be located when under the water, by the disturbance (or burble) caused to the flow of the stream. These not only may be positioned for the safety of navigation, but their presence is likely to have an effect on the course chosen by the flood water in the following season, and the engineer can make a very accurate forecast as to the danger to be expected by erosion or a further siltation.

In 1928 also, the Air Survey Co., Ltd., surveyed a large tract of country in the province of Orissa, which has for years been troubled by the annual visitation of floods. It is a flat basin surrounded by a ring of hills, and when the rains come, the water piles up in the basin owing to insufficient fall away to the coast.

The air survey clearly showed that the trouble was largely aggravated by silt and sand banks

forming extensive bars to the mouths of all the rivers, with the result that no outlet was obtained during low-tide conditions.

This year the Indian Air Survey & Transport, Ltd., have entered into a new and important contract for cadastral survey in Bengal, and are also engaged on further contracts for the Indian railways, who have expressed themselves more than satisfied with the previous season's work.

Mr. F. P. Raynham is in charge in India at present, with Mr. O'Connor, a surveyor who superintends all mapping and ground survey work.

By their recent work in India, the Air Survey Co., Ltd., have revolutionised the methods of obtaining reliable cadastral maps. Hitherto, the process was a lengthy one and often annoying to the tenants, who naturally resented their crops being spoilt by the surveyors dragging chains over them, and also often having to pay some cunning subordinate not to overstate the area of his holding.

By the older method the surveyors would get through a few hundred square miles in one season, maps would be made during the

monsoon months and sent out with the Settlement party during the fine season of the following year. It was not until the end of the third and sometimes the fourth year, however, that all disputes were settled and the maps finally made.

With air survey much larger areas can be undertaken and the map completed for use in one year. The reason for this is that the photographs are prepared at the approximate scale of 16 ins. to 1 mile so quickly that the Settlement parties can go out and complete their work in the same



Contrast this view of a portion of Calcutta with that of Liverpool, at Lime Street station, on the preceding page. The small square "air-holes" to the central courtyards would hardly satisfy our sanitary inspectors even in the worst parts of our cities.



The staff of the Air Survey Co. at Rangoon with a trusty old D.H. 9 (Siddley Puma).

season as the survey is being carried out. This saves a year over the older method, but another year is saved by avoiding disputes and not having to make preliminary maps. This is done by sending the photographs into the field with the Settlement party, instead of maps. With the photographs it is possible to get the tenants to agree perfectly as to the boundaries of their holdings, without the difficulty of measuring etc.; the boundary between one plot and another is demarcated by a bund of earth which can be clearly seen on the photographs, which are understood by the tenants much better than the maps.

As each boundary is agreed, it is marked in with red ink and numbered on the photograph in the presence of the tenant. The photograph is then sent back to the Survey Company to complete the maps from a new set of rectified photographs scaled exactly to 16 in. to 1 mile, using the marked photo as a key as to which field bunds actually constitutes the boundaries between holdings.

In the winter season of 1928-29, the Air Survey Co., Ltd., sent a small party to Egypt where they carried out the survey of 50 of the more important towns situated between the Mediterranean coast and Aswan.

Photographic plans of these are being made on a scale of 1/2,500, for the Directorate of Municipalities, and it is anticipated they will be of extreme value for development purposes.

Many of the towns are of exceptional archaeological interest, and the air photographs show many features which may prove of value in that connection.

The Upper White Nile Air Survey in the Sudan

This survey is of the utmost importance to both Egypt and the Sudan, and to the many vast industries which depend on cotton growing.

To irrigate more of the vast stretches of fertile soil now idle sunbaked desert, would be a comparatively simple matter were the water available.

To obtain more water no stone has been left unturned, and it has been established that an immense amount more water enters the Nile from Uganda in the south, than flows out north of that vast region of the Sudd which covers so much area in the Sudan.

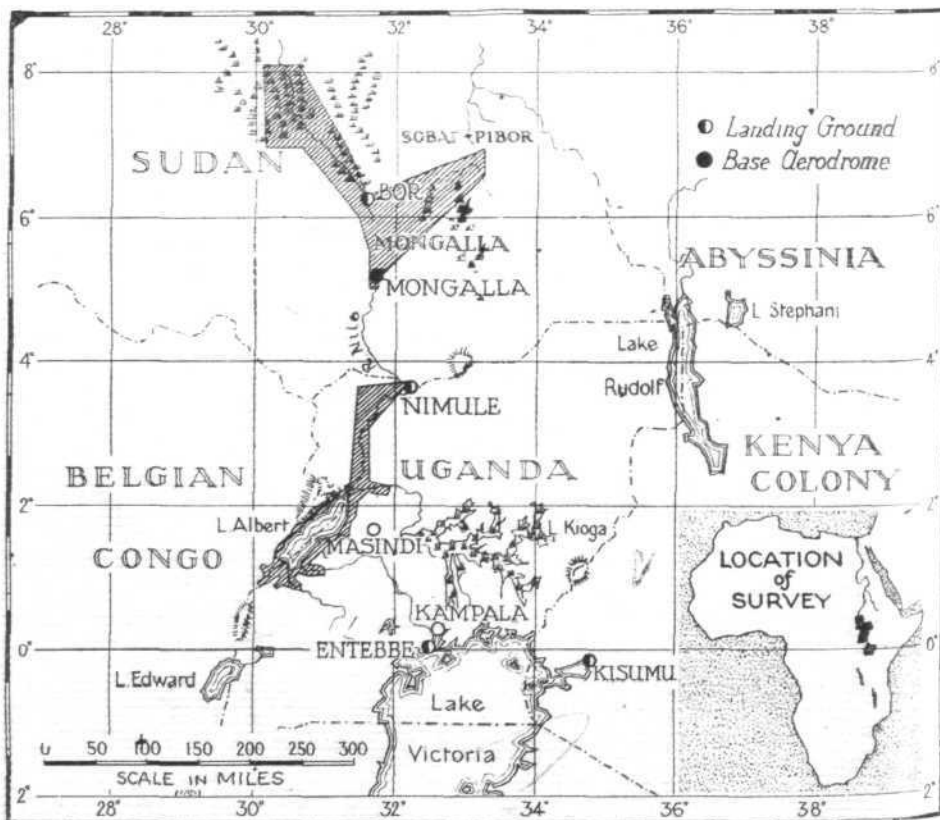
After careful investigation by the Irrigation Authorities, it has been proved that evaporation is the cause of this tremendous loss, and the cause of the evaporation, in turn, has been traced to the Sudd Region, where vast lakes lie almost stagnant, so slow is its rate of travel through the dense swamp. The air survey may, it is hoped, lead to a means of curing this by cutting canals through from one clear reach

of river to another, thus allowing the water to pass through the interrupted area in a comparatively short space of time, and another, but not necessarily an alternative scheme, is to make a vast reservoir of Lake Albert in Uganda. Were this done the surplus water which now comes down during the rains only to be lost in the swampy Sudd Region, might be stored and used during the dryer seasons. The Air Survey Co., Ltd., have been called in to survey not only the shores of the lake, some of which lie in Belgian Congo territory, but the whole of the vast area which would be inundated by putting a dam across the Nile at a suitable place some distance north of the lake.

Maps will be made on a scale of 1/50,000, and photographic plans prepared on a scale of 1/20,000. The latter will show much detail which cannot be included in maps of so small a scale as 1/50,000, and will therefore be of extreme value to the Irrigation Authorities in formulating their plans and to the engineers who finally carry out the work.

Out of the total of area extending to over 50,000 sq. km., 15,000 or more will be surveyed this year.

The equipment includes two Fairey III.F. type aeroplanes fitted with Armstrong-Siddley 480-h.p. "Jaguar" V.I.C. engines.



This map shows the location and area of the new survey contract in the Upper White Nile district of the Sudan.

It is estimated that climatic conditions will not permit photography from a greater altitude than 15,000 ft. At this height the Fairey III F has an exceptionally good cruising speed.

The camera made specially for the Air Survey Co., Ltd., by the Williamson Manufacturing Co., Ltd., of Litchfield Gardens, Willesden Green, takes pictures 8 ins. by 7 ins. at a height of 15,000 ft., these cover an area of approximately 25 sq. km., which explains why air survey covers ground so rapidly.

The air section are working from an aerodrome at Juba, while the photographic section are based at Rejaf, a few miles away.

Ground parties are penetrating the area, making a "control" on which to build the maps. These parties are using Mongalla, Bor and Malek as their bases, from where they can get into communication with their headquarters staff at Rejaf.

Special films are being used, made by the Imperial Dry Plate Co., Ltd., of Cricklewood. Cooling and lighting plants have been set up at Rejaf, the former built specially for the company by Messrs. J. & E. Hall, Ltd., of Dartford, has been necessary in order to handle the films in the excessively hot climate, while the latter is for lighting darkrooms and printing etc., and has been supplied by Messrs. Stewart Turner, Ltd., of Henley-on-Thames.

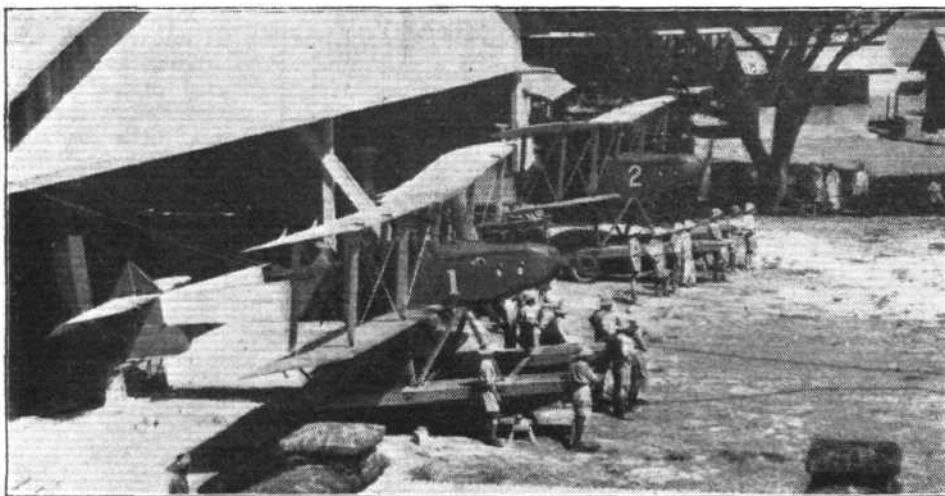
The first process to be gone through in the field after completion of the vertical photography, is to supply the ground party with field maps of all parts of the area far removed from the existing roads and tracks. These will be photographic sheets on a scale of 1/77,000, or thereabouts.

With these in their possession, the ground parties plan the best routes for their work and thereby avoid all the difficulties met with when penetrating unexplored country in the usual manner.

The final maps and photographic plans will be made at the company's drawing offices either in London or Calcutta, according to the amount of work on hand in London.



A vertical view on the wharves and jetties of Rangoon.



Another view of the Air Survey Co.'s seaplane base at Rangoon.

AIRSHIP ITEMS

R. 100 and R. 101

ON conclusion of her 54 hrs. flight, R 100 was taken back into her shed for A.I.D. inspection. Supposing that the report is satisfactory, she will then receive her certificate of airworthiness. Presumably, after the new bay has been fitted into R 101, that airship will have to commence her trials afresh; for she will be to all intents and purposes a new airship. R 100 will make some more flights over Great Britain this winter before she starts, probably in May, to fly across the Atlantic to Canada, and moor at the tower at St. Hubert's Field, Montreal. There is at present no question of her flying to Egypt.

From the technical point of view, it has been a good thing that both airships should have made their appearance in the winter, for they, and R 101 in particular, have been able to demonstrate their strength by riding out heavy gales at the tower. From the point of view of converting (if necessary) Members of Parliament and journalists (persons who, accord-

ing to the late Sir William Gilbert and the present Air Minister, respectively, are not usually intelligent people) to the delights of airship travel, it will be wise to postpone further suggestions of pleasure trips until the weather becomes somewhat less unpleasant.

"Graf Zeppelin's" Movements

ACCORDING to statements made by Dr. Eckner, the proposed cruise over the North Pole by *Graf Zeppelin* has definitely been abandoned—mainly on account of the problem of satisfactory insurance of the crew. The airship will, however, fly to Geneva, and make a landing there, during the next session of the Assembly of the League of Nations. Dr. Eckner also stated that a German-American air traffic company would be formed in March for operating a regular airship service between Germany and the United States, and airships would be built which would make the flight to America in three days and the return journey in two days.

PRIVATE FLYING AND CLUB NEWS

THE HAMPSHIRE AEROPLANE CLUB started the year well with 112 hrs. 5 mins. flying during January. Mr. Dudley, the club's instructor, must surely have created a record by putting in 1,100 hrs. dual instruction since he joined the club in July, 1928. For the last five months he has been working single-handed, and thus is almost entirely responsible for the 26 members who have gained their "A" licences in the last six months. This period is the first six months of the second year under the new subsidy arrangements, and this output of pilots represents a value of £1,600 earned from the Air Ministry. Mr. Dudley is having an assistant on March 1 next. Such intensive flying means a great strain on the ground engineer's staff, but Mr. Lenny and his assistants have proved equal to the work, and troubles have been all kept at bay.

The club is particularly lucky in having a really keen set of pilot members, who, in the last six months, have put in 230 hrs. flying between them. This is a point which many other clubs are not so lucky in, as once many members have got their tickets they seem to forget that aeroplanes exist.

LAST WEEK we gave an illustration of two officials of W. B. Dick and Co., standing in front of their newly-acquired Moth. Through an error both were referred to as managing directors; in point of fact, Mr. A. Franks is the managing director, and Mr. E. C. Brown is the aviation manager. We take this opportunity of apologising for this inadvertent error.

IN our list of clubs published in *FLIGHT* of January 17 we referred to Capt. the Hon. J. B. Rodney, as secretary of Hanworth. Actually he is, of course, manager. Hull Aero Club should also have had an intimation after it denoting that it is part of the N.F.S. organisation.

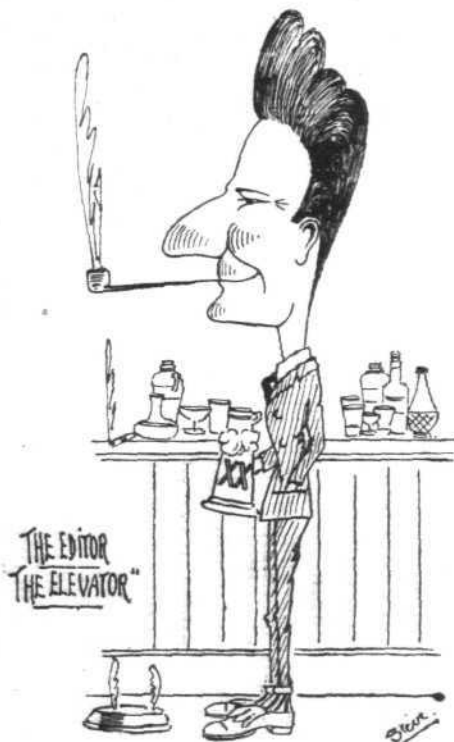
THE PLYMOUTH AERO CLUB are still not quite settled about their aerodrome and the position seems to be that although they understand that the aerodrome at Roborough has been passed as a first-class aerodrome, they have not yet received the official notification and, therefore, the municipal authorities have not completed the purchase. An endeavour is being made to have the ground ready by July 1, and it is hoped to arrange that Plymouth is one of the stopping places for the King's Cup, in this connection it is also proposed to arrange a flying meeting at the same time.

THE CINQUE PORTS FLYING CLUB show that they have the welfare of the club at heart by the care with which they keep track of all details, and the way in which they record such things as fuel consumption. This undoubtedly pays, as during December their Cirrus II Moth, G-EBRM, averaged 3.511 galls. per hour, and for January 3.754 galls. per hour. It would be interesting to know whether other clubs can equal this for economy. On February 1 Mr. John Lord paid the club a visit in the "Cutty Sark," which has been fitted with amphibian landing gear. He was on his way down from Martlesham, and was piloted by Flight-Lieut. Scott. The first competition for the Ashwell-Cooke Challenge Cup was held on Sunday, February 2, and resulted in a dead heat. Five entries were received, four from the club being Messrs.

Calvert, Dallas Brett, Bowring and Oddie, and one from the D.H. School, Mr. Tennant. Pilots having under 50 hrs. solo were not handicapped, but those with over this number had five marks deducted for each 50 hrs. or part thereof over. The maximum marks obtainable were 100, and these were awarded for the manner of the approach after the machine had climbed to 500 ft. and was approaching to land with the engine throttled right back. Further marks were allowed for the actual landing, and for the distance

the machine stopped after passing a line 50 yds. to windward of the mark over which the landing had to be made. Mr. Tennant gained 94 minus 5 (handicap) equals 89, and tied with Mr. Calvert, who also scored 89. Mr. Brett was second with 74. Mr. Bowring was third with 48—Mr. Bowring only secured his "A" licence on the preceding Thursday—a really sporting effort as he is only 17 years of age, and Mr. Oddie was fourth with 40. Mr. Clayton Rickard, of Hythe, has presented a silver challenge cup, which will be given to the competitor whose three best scores in the monthly competitions for the Ashwell-Cooke Cup show the greatest aggregate of marks during the year ending February 2, 1931. The next competition will be held on Sunday, March 2, and the rules have been amended as follows:—

Competitors will have to climb to 1,000 ft. instead of 500 ft., and must throttle back their engines at that height as nearly as possible immediately above the mark on the aerodrome in order to avoid competitors doing a straight approach. The competitors using slots will be handicapped 5 marks from their total score. The distance allowed to run after crossing the mark will be increased from 50 yards to 75 yards, and marks will be deducted only in respect of the distance run after the end of the 75 yards free allowance has been passed.



A GENIAL LIBEL: "Steve's" idea of Mr. Alan Goodfellow in his capacity as Editor of the "Elevator," the journal of the Lancashire Aero Club.



A METAL AVIAN TO SERVE THE SHELL INTERESTS: This machine is one of the latest acquisitions of the Shell-Mex organisation. They are now launching a scheme whereby an attack will be made on the Dominion markets with the aid of aircraft, and this Avian (Genet Major) was christened, together with two Moths (Gipsy), at Croydon Aerodrome on Thursday, February 6.



BOMBAY FLYING CLUB "AT HOME": General view of the members' enclosure at Juhu Air Park on the occasion of the Bombay Flying Club's "At Home" and Aerial Display, December 3, 1929. The machine is a D.H.9

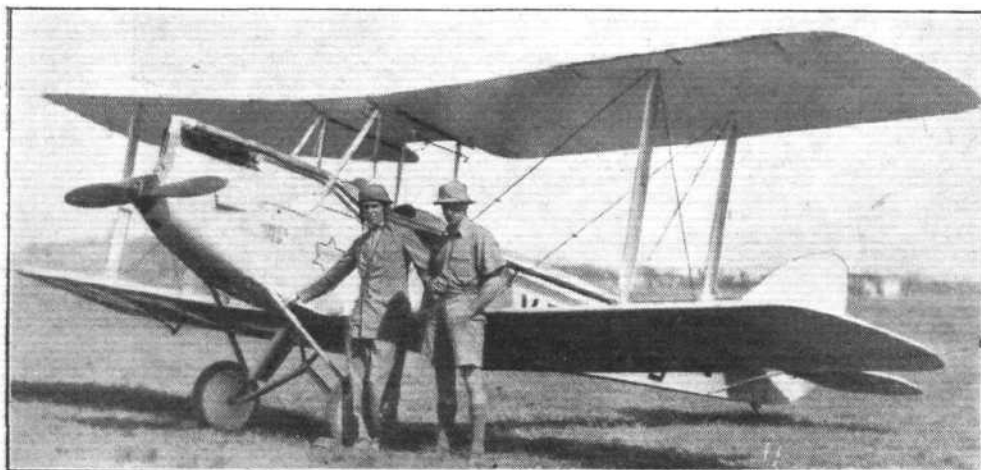
BOMBAY FLYING CLUB "AT HOME"

DETAILS have just come to hand of an air display held by the Bombay Flying Club at Juhu aerodrome on December 3 last. The occasion was the formal presentation to the club of the Moth offered as a prize by Sir Charles (now Lord) Wakefield to the first Indian flying club which should turn out 12 qualified pilots, of whom at least six were to be Indians. This prize was won by the Bombay club, although the two Moths provided by the Government were not delivered until January 13, 1929,

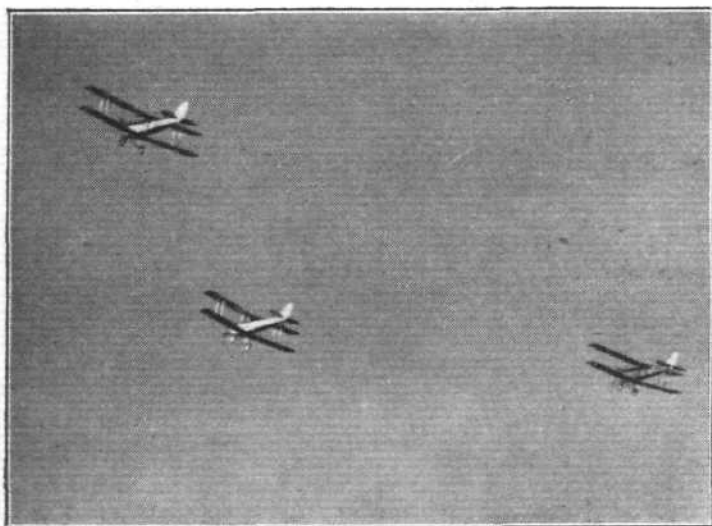
and at the time of the display the club had only been in active operation (owing to the monsoon) for about six months. H.E. the Governor of Bombay, who is our old friend Sir Frederick Sykes, performed the ceremony of christening the Moth with a glass of wine, and named it "Sir Charles Wakefield," and then made it over to the club. Mrs. F. D. Petit received it on behalf of the club, and straightway flew it round the aerodrome. Mrs. Petit, a Parsi lady, is the first Indian lady to learn to fly, while



PRESENTING A "MOTH": A D.H. Moth (Gipsy) was presented to the Bombay Flying Club by Sir Charles (now Lord) Wakefield on the occasion of the Club's "At Home." Our picture was taken after the christening, and shows, from left to right, Mr. M. A. Fazalbhoy, Mr. C. M. Eastley, Mrs. F. D. Petit, Master Sykes, H.E. Sir Frederick Sykes (Governor of Bombay, who christened and handed over the machine), Sir Victor Sassoon, and the Governor's A.D.C.



"SIR CHARLES WAKEFIELD": The D.H. Moth presented to the Bombay Flying Club by Lord Wakefield. In front of the machine are Mr. J. A. Brown (left), of C. C. Wakefield and Co., Ltd., and Mr. W. Scott King, the Club's Engineer. Below, three of the Club Moths which escorted Sir Frederick Sykes from Government House to Juhu Air Park



the first Indian pilot to be trained in India is her brother, Mr. Jehangir R. D. Tata. Mr. Tata went solo after only 3½ hours' dual. Mr. F. D. Petit, the lady's husband, has also taken his "A" licence through the club. Including Mrs. Petit, six Parsis, one Mussulman, and six European

members of the club have obtained "A" licences, and two Europeans have qualified for "B" licences. The club owns four Moths, two supplied by the Government, one bought by the club, and the Wakefield machine. Five members have bought machines of their own. At the time of the display the club had 161 enlisted members, and there was a list of 45 members awaiting instruction. The Juhu aerodrome becomes waterlogged during the monsoon months, and flying has to be suspended. There is, however, a scheme on foot for the Government of India to buy the aerodrome from the Government of Bombay and raise the level of the soil, so as to make flying possible all the year round.

The entrance fee to the club is Rs. 50, and the annual subscription is Rs. 20. A rupee is now worth 1s. 6d. in English money. While a member is learning, the services of the club's instructor, Mr. E. D. Cummings, are charged for at the rate of Rs. 25 per

hour. Holders of "A" licences can hire one of the club's aeroplanes, when available, for Rs. 15 an hour.

The club may be described as a really live and going concern, which is fulfilling the purpose for which it was founded and received the help of the Government, namely, to promote airmindedness. In the few months of its active life, flights have been made by club members to Poona, Porebunder, Ahmadabad, and Deolali. Ahmadabad is about 270 miles due north of Bombay, and the route is over the low-lying shore of the Arabian Sea and the Gulf of Cambay. Poona and Deolali are respectively 80 and 100 miles distant, but both lie on the far side of the range of the Western Ghats, which rise from 3,000 to 5,000 ft. above the plain. To get to Poona especially some very rugged mountainous country must be crossed, where a forced landing would be excessively unpleasant.

An aerial display followed the presentation of the Moth. It was largely attended, and about 1,000 cars had to be parked. The crowd was estimated at 10,000. Moths gave displays of aerobatics, air fighting, bombing a motor car with flour bags, and formation flying, and finally free flights were given to non-flying members of the club and their guests. The club was "at home" during the afternoon to a large number of guests. Among them was Sir Ernest Petter, Chairman of the Westland Aircraft Co., Ltd., with whom His Excellency the Governor conversed for some time.

THE HARROGATE AIRCRAFT CLUB has been formed and Mr. Addyman is the Hon. Secretary. For the present their activities will be confined to the construction and flying of a glider. The glider chosen is the one designed by Mr. Dickson, and being published in these pages, and work has already been started on it. The constitution of the club is mainly that of four sections—model, aeroplane, glider (flying), and constructional—and any member may belong to any section for the payment of a small extra fee. For the present the glider and constructional sections are the only ones functioning. A club room has been secured, and members are meeting every Friday from 7 to 11 p.m.

THE LONDON AEROPLANE CLUB'S report for 1929 is just to hand, and it shows that they have got in 2,634 hrs. 15 mins. flying and turned out 51 "A" licensed members and 2 "B" licensed members. There is a suggestion going round that they may move to Radlett shortly, as Stag Lane is getting somewhat congested.

MRS. WILSON, who holds all the financial interest in Wilson Airlines, Ltd., in Kenya, is practising what she preaches, for not only does she invariably travel by air, but has now placed an order for a special Coupé Moth for her own private use. This is presumably due to the satisfactory service she has received from the Moth in use for her air line work.

THE BARON DE PRÉCOURT took delivery of a Gipsy Moth at Stag Lane Aerodrome on Friday morning, January 31, and set off to Paris. The Baron is well known in French aviation circles, being a director of the Schreck Aeroplane Co., and the owner of a Schreck monoplane and a Morane machine. Moths have already been supplied to the Comte de Sibour and the Comte de Beauregard, while a Moth is on order for the Comte de Villefranche. Full Moth service facilities exist near Paris at the premises of Aeroplanes Morane-Saulnier, who build the Moth under licence.

MR. SALIM SASSOON DANIEL has just successfully completed a flight in his Moth from England to Baghdad. He holds a British "B" pilot's licence, which enables him to fly commercially; and he is, in fact, the only Iraqi to possess such a licence. He is also the first Iraqi private owner of an aeroplane. Mr. Daniel was taught to fly in 1927 by Col. Henderson at his well-known school of flying. Mr. Daniel is an oil-mining engineer by profession, and is now thinking of enlarging his activities by starting a Moth taxi service in Iraq, which he proposes to run in conjunction with his engineering duties. He is 27 years of age.

THE SEAHOLME MAGAZINE is the title of the journal emanating from the drawing office of Saunders-Roe, Ltd., at Cowes. Seldom have we seen such an admirable staff magazine, and it is well worthy of circulation in all the aircraft drawing offices in the country.



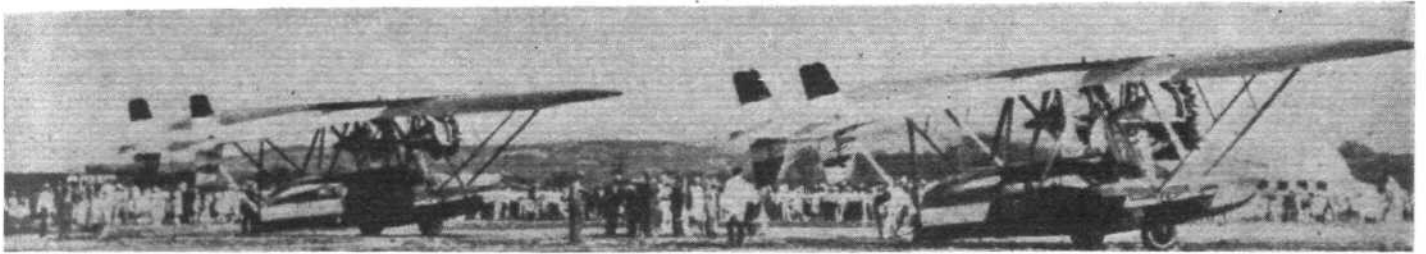
AIR TRANSPORT

AIR TRANSPORT IN HAWAII

THE islands of Hawaii now have their aerial transport services, operated by two separate companies. The first of these was inaugurated on November 11 last, when Inter-Island Airways, Ltd., made the first trip from John Rodgers Airport, Oahu (near Honolulu), to Hilo, on the main island of Hawaii. The inaugural ceremonies marking the opening of the service included addresses by Governor Lawrence M. Judd, and R. R. Allen, President of the Honolulu Chamber of Commerce, and the christening of two of the three Sikorsky S 38 twin-engined amphibian flying-boats employed by Inter-Island Airways. Both these machines made the first journey over the route, accompanied by six machines from the U.S. Navy and Army.

The schedule of operation established by Inter-Island Airways provides for a round trip from Honolulu to Hilo, via Manui and return, and is as follows:—Every Monday, Wednesday and Friday, leaving Honolulu at 8 a.m. and returning at 5.15 p.m. Stops are made on request at Molokai and Lanai. Every Tuesday and Saturday two round trips are made from Honolulu to Kauai. The following aerodromes have been established on the various islands: John Rodgers Airport (Oahu); Hilo Airport at Waiakea (Hawaii); Maalea Airport near Kikei (Maui); Hanapepe Field (Kauai).

It may be of interest to note, in connection with the Sikorsky amphibians used by I.I.A., two of these were shipped



HAWAIIAN AIR TRANSPORT: Two Sikorsky S.38 amphibians of Inter-Island Airways about to start on the inaugural flight from John Rodgers Airport Honolulu, to Hilo

Inter-Island Airways, Ltd., is a subsidiary of the Inter-Island Steam Navigation Co., which operates marine services in the Pacific; it has a capital of \$500,000 (with the privilege of increasing this to \$5,000,000), the steamship company controlling approximately 60 per cent. The General Manager of I.I.A. is Mr. S. C. Kennedy, who is also Assistant General Manager and Director of the Inter-Island Steam Navigation Co.; he was a pilot in the U.S. Naval Air Service during the war. Besides the Sikorsky machines, Inter-Island Airways employ a Bellanca "Pacemaker" six-seater for sight-seeing trips over the island of Oahu. These trips are conducted on a daily schedule, and are expected to attract tourists, and thus bring in extra revenue—serving at the same time to develop "airmindedness" among the Islanders.

While tourists will patronise the main island services, the company hopes to depend upon the resident population for the bulk of its business, and a campaign of "educating" the Islanders to the advantages of air travel is being launched. This should not be very difficult, seeing that by air the journey from Honolulu to Hawaii takes about 2 hours, as compared with 12 hours by boat.

from the Sikorsky factory at College Point to Honolulu (via the Panama Canal) last August. Mechanics from the U.S. Navy and Army Air Squadrons station and at Honolulu assisted in reassembling the machines, but as regulations prohibit the employment of U.S. soldiers or sailors for pay, these mechanics received the crates in which the wings and hulls were packed—which they prized highly, as motor-car garages!

The second company operating in the Islands is Hawaiian Airways, which concern intends to establish air services, carrying passengers and freight, over much the same route as I.I.A. Hawaiian Airways started operations with a Kreutzer Air Coach, fitted with three Warner engines, and a number of preliminary trips to the islands of Molokai, Maui and Hawaii have been made. The company will, it is reported, operate three of these machines, as well as two 3-engined Fokkers.

This company is sponsored by Standard Airlines, the Los Angeles Steamship Co., and the Aero Corporation of California. Commander G. O. Noville, who flew with Richard Byrd across the Atlantic, is operations manager for the company.

The Karachi-Delhi Air Mail

THE following service details of Karachi-Delhi extension of the England-India air route may be of interest. (Note.—One rupee = 16 as. = 1s. 6d. The stopping places en route are Hyderabad and Jodhpur, and the passenger fares, baggage and freight rates and air fees on air mail correspondence are as follows:—Passenger fares from Karachi: to Hyderabad, Rs. 24; to Jodhpur Rs. 95; to Delhi, Rs. 150; from Hyderabad: to Jodhpur, Rs. 75; to Delhi, Rs. 150; from Jodhpur to Delhi, Rs. 75. Each passenger is allowed on his ticket 100 kilos (equal to 221 lbs.), including his own weight. Return tickets, valid for six months, are available at 1½ fares, which must be paid for either at the time of booking or before the first journey is started.

Air fees for inland air mail correspondence carried over the whole or any part of the route in either directions is 2 as. per tola, or fraction thereof; for foreign articles 2 as. per half oz. or fraction thereof, in addition to the air fees from Karachi of (a) 6 as. to any airport in Europe; (b) 4 as. to any airport in Egypt and Palestine; (c) 3 as. to any airport in Iraq.

The provisional time table of the service is given below. It is subject to alteration without notice:—Eastwards, Saturday, 5 p.m. dep. from Karachi, 6.10 p.m. arr. at Hyderabad (Sind); Sunday, 7 a.m., dep. from Hyderabad (Sind), 10.55 a.m. arr. at Jodhpur; 11.40 a.m. dep. from Jodhpur, 3.35 p.m. arr. at Delhi.

Westward: Monday, 7 a.m. dep. from Delhi, 10.55 a.m. arr. at Jodhpur; 11.40 a.m. dep. from Jodhpur, 3.35 p.m. arr. at Hyderabad; 4.20 p.m. dep. from Hyderabad, 5.30 p.m. arr. at Karachi.

Air Transport in the West Indies

CAPTAIN HOLLAND, who is investigating the prospects of commercial and passenger air service in the West Indies, arrived at Kingston, Jamaica, in a Canadian Vickers flying-boat on January 28.

Batavia-Singapore Experimental Flights

THE Dutch East Indies Air Company will carry out a trial flight from Batavia to Singapore on February 10, the return journey being made the following day.

"WHAT MANCHESTER THINKS TO-DAY ENGLAND WILL THINK TO-MORROW"

MUNICIPAL aerodromes have been the burning question in many quarters recently; some municipalities are treating this as an important point and are going full out to establish an aerodrome which will cater for the commercial needs of their district, while others are still wallowing in a slough of lethargy and others again are standing on the fence and watching with subdued interest the efforts of those with foresight who have taken the "bull by the horns" and have already gone far to establish a fully equipped municipal airport.

In the first category comes Manchester (naturally!) and at a recent visit we were able to see what progress has been made toward achieving their objects. They have had to face considerable engineering problems, but these have not been so considerable as the scaremongers would have us believe. When it was first suggested that the proposed aerodrome should be located on what was called Chat Moss a number of pessimistic reports were spread about showing that the idea was doomed to failure. We must first of all correct a misunderstanding. The aerodrome is not on Chat Moss at all, but on the edge of the waste land adjoining Barton Moss and 6 miles along the main Manchester-Liverpool road. All these reports raised the old case of the railway which was started in an endeavour to get across the land, but the boggy nature of the subsoil prevented the foundations from being securely built up and in the end the sleepers had to be more or less floated across, leaving the subsoil *in situ*. When the attempt was made to build up the rigid embankment right across, it merely had the effect of pushing a wave of squidgey land up in front which then closed in behind and rendered the work already done quite ineffective.

On the land where the aerodrome has been built the case is different and the foundations are comparatively solid, as the place has been used for a refuse and cinder dump for many years. To make it usable for aircraft, cinders have been laid to form three runways and these are raised above the rest of the unprepared ground in the same way as is being done in the greater majority of cases in America. The aerodrome as it stands now bids to be one of the first-class aerodromes in the country and there is no doubt that those responsible are making every effort to ensure that this is so.

One large hangar, 200 ft. by 100 ft., has already been built



AN EXHORTATION: Mr. Ledlie shows the Cleansing Committee how to get to work. (FLIGHT Photo.)

and this not only houses the machines, but also has been arranged with workshops, a doping room, a furnace room with two furnaces for heating the hangar and workshops, a store and a small power station which will be used as a standby in case the supply from the City mains should fail. The hangar is large and rather high and the height is not made use of for stores or anything around a gallery, but presumably the main idea was to provide height for the largest air-liner which would be likely to come to the airport for some years.

Foresight has been shown by the laying down of the concrete apron in front of the hangar as this has been carried along where the site for the second hangar has been chosen, so that when the time comes for building another hangar there will be no extra expense involved in getting all the plant back on the aerodrome, which would be necessary for laying down the extra apron.

The farm buildings which were already on the land have been made good use of for offices which will not only be the administrative offices, but will also house the customs and the resident A.I.D. officer. Ample provision has been made for wash-places and lavatories, and a large barn is being made into garages for motor-cars. Adjoining these buildings is one which is being made into an hotel, a very necessary adjunct to a municipal airport; with regard to this, however, the Mancunian committee have shown that even they sometimes suffer from lack of imagination because they have turned down the suggestion of a prominent official on the spot, that the hotel should be called "The Pitot Head," and are labelling it by the more prosaic and less attractive title of the Aerodrome Hotel.

Northern Air Lines, whose directors are Mr. F. J. V. Holmes and J. F. Leeming, are acting as managers for the Manchester Corporation, and Mr. W. Ledlie is the manager on the spot. Northern Air Lines will, of course, be carrying on their business of catering for taxi-work and all other forms of aerial operations from the airport itself. The demand for machines for taxi work is remaining fairly steady in spite of the winter, and the volume of business done shows that a steady increase is taking place. Berkshire Aviation Tours, Ltd., which is a subsidiary of N.A.L., probably holds the largest stock of "Avros" and "Le Rhone" 110 h.p. engines in the country, and they deal solely with joy-riding. An extensive campaign



THE POWERS THAT BE: On the left is Mr. F. J. V. Holmes, then Capt. A. Kingwill, the Lord Mayor (F. Norton Barclay), Mr. J. F. Leeming and Alderman Davy. (FLIGHT Composite Photo.)

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"THAT HE WHO RUNS MAY READ" : The first hangar at the Manchester Municipal Airport. (FLIGHT Photo.)

is being planned for the forthcoming season and full advantage will be taken of the two years respite which the Air Ministry have granted the "Avro" by their relaxation of the order requiring fireproof bulkheads to be fitted. Another profitable use to which N.A.L. have been putting their machines is banner-flying. Two banners are attached to the trailing edges of the top planes and these are marked with large letters which can be readily seen from below. Large advertising contracts are in hand for the authorities controlling the Manchester Ship Canal and an area is being covered in which Manchester is the nearest port. Another contract is being carried out for a soap manufacturing firm, and the latest to take advantage of this form of advertising is the Committee of Public Cleansing, whose banners are shown in our photograph.

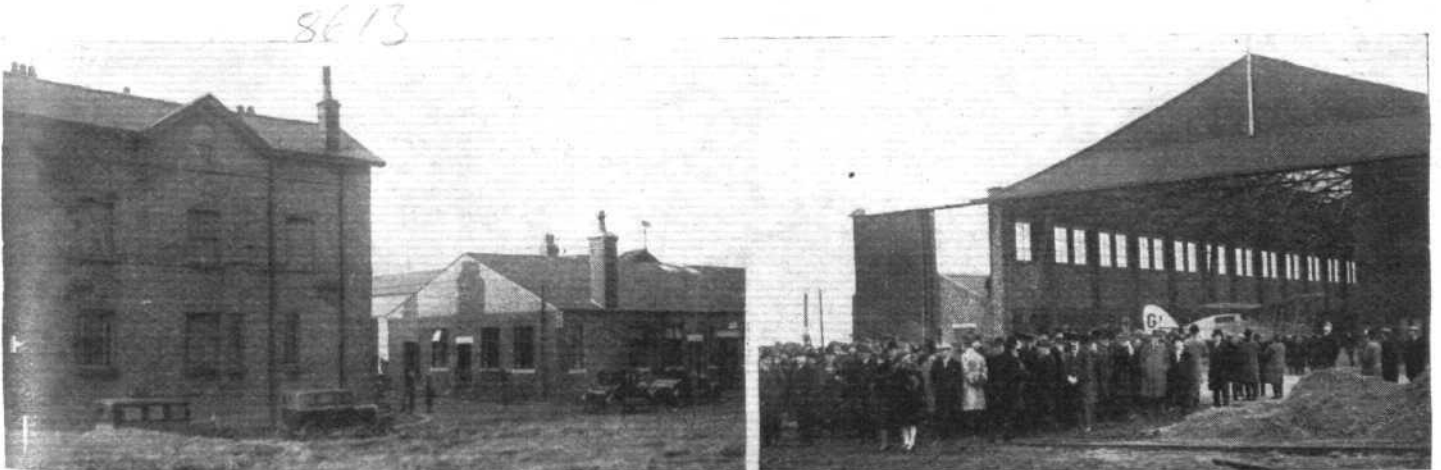
On Wednesday, January 29, the Lord Mayor (F. Norton Barclay) and Alderman Davy (Chairman of the Air Port Committee) showed a party of representatives from the Public Cleansing Committees of several other cities over the airport and a great deal of interest was shown in the progress of the airport.

There was a small demonstration of flying staged by N.A.L. for the benefit of the visitors, and many were afterwards taken up in a D.H.9 ("Puma"), Capt. Ledlie, the airport



EVOLUTION : The battery of fuel pumps being built up on what will shortly be a concrete roadway. (FLIGHT Photo.)

manager displayed the banner on an Avro while Capt. Kingwill, the chief pilot of N.A.L., showed how easy it is to do all the things one ought not to do when one knows how to do them. It will be remembered that he gave several extraordinarily good exhibitions last year at flying meetings, when he emulated



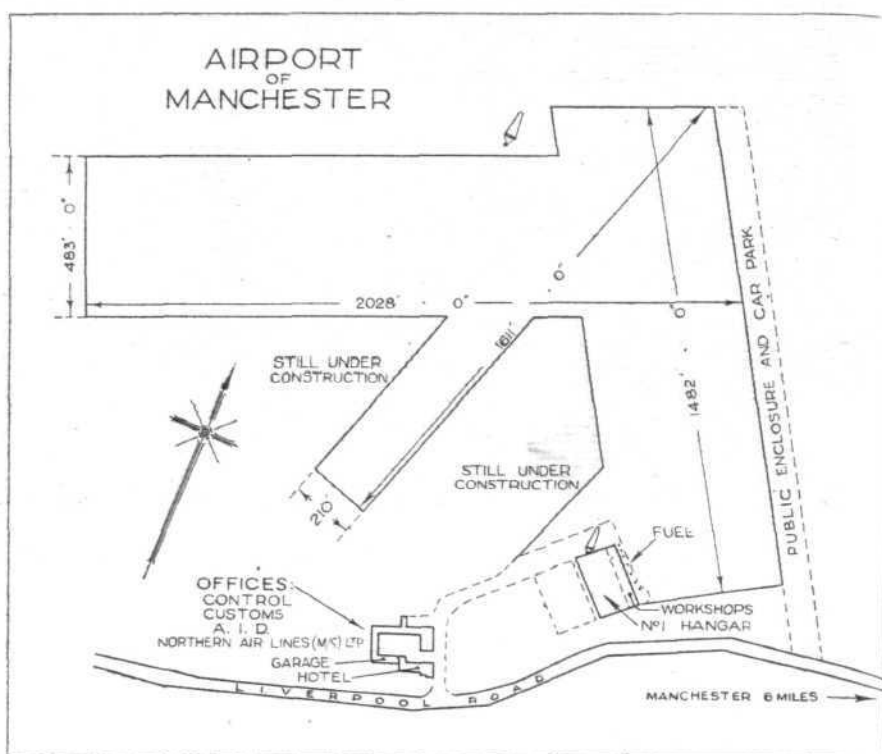
HOUSING FOR MAN AND MACHINE : On the left is the embryo hotel and the adjacent offices and on the right is a view of the crowd outside the hangar during the visit of the Cleansing Committees. (FLIGHT Photo.)

the efforts of a novice to fly and his handling of the machine is certainly masterly.

On this occasion he was using a Genet-Avian, and in spite of the small power he was able to bring forth many "oo-oo-oo's" and "aa-aa-aa-h's" from the local enthusiastic onlookers.

After the demonstration all the members of the Institute of Public Cleansing, North-Western Branch, were entertained at a luncheon given in the Manchester Town Hall. About 120 representatives were present and all were greatly impressed with the work that had been done at the Manchester Airport and of the promise it gave for a profitable future for municipal interest in aircraft.

Alderman Davy, who is Chairman of the Airport Committee, announced the fact that they were seriously considering the possibility of equipping the aerodrome with meteorological and wireless installations, so that direct communication with the Continent by air from Manchester will be feasible.



A MODERN LAYOUT: The ground plan of the Manchester Airport. Its convenient location to the main road can be seen, and tram and 'bus come along this road from Manchester.

THE VERSATILE FAIREY III F.



ELSEWHERE in this issue we refer to the activities of the Air Survey Company and mention that the second Fairey III F. machine, which has been specially built with a Jaguar VI.C. engine, would shortly be ready. This aircraft was recently demonstrated at Northolt, and our photographer

has caught Mr. C. R. McMullin showing the sort of speed which makes aircraft for commercial use a paying proposition. The Jaguar engine has been very neatly cowled, and in this case certainly does not spoil the proverbially good lines of the III.F. (FLIGHT Photo.)

AIRISMS FROM THE FOUR WINDS

Mr. Chichester Concludes

MR. F. C. CHICHESTER, who set out from Croydon on December 20 to fly to Australia and New Zealand in a Gipsy Moth, arrived at Mascot Aerodrome, Sydney, on January 30. He received a most enthusiastic welcome, and was met by a fleet of N.S.W. Aero Club aeroplanes, which escorted him into the aerodrome. Alderman Alexander, Mayor of Mascot, presented an address to Mr. Chichester, on behalf of the municipality, expressing appreciation of his pluck and resource and congratulating him on his achievement. His journey from Port Darwin had been a remarkable one, for he had to fly through a thick rain-belt and over flooded ground where a forced landing would have been very difficult. Mr. Chichester decided to stay a week in Sydney, then proceed to New Zealand by steamer, taking his "Moth" with him. We are glad he has wisely decided not to attempt the over-sea flight to New Zealand, and otherwise mar a magnificent achievement by taking unnecessary risks. Lord Thomson, Secretary of State for Air, sent the following telegram to Mr. F. C. Chichester: "Air Council tender warm congratulations on successful completion of your fine flight to Australia."

R.A.F. Flight to the Cape

THE four R.A.F. Fairey 3.F biplanes of No. 14 Bomber Squadron arrived at Cape Town on February 1, according to schedule, thus completing the outward stage of the flight. Two days were spent at Cape Town, and on February 4 the machines took off on the homeward journey.

Mohan Singh Comes to Grief

MAN MOHAN SINGH, the Indian airman and Bristol University student, who is flying from London to India in an attempt to win the prize offered by the Aga Khan, made a forced landing on a hillside near Cosenza, Calabria, on February 3, after leaving Naples. The machine was badly damaged, but he was only slightly injured.

Mr. Roy Tuckett Again Unlucky

MR. ROY TUCKETT, who left Croydon last November on a D.H. Gipsy Moth in an attempt to fly in record time to Cape Town, has not been at all fortunate in his venture. Once again he has met with misfortune, for in taking off at Toroso, Kenya, last week his machine crashed and was badly damaged. Thanks to his safety belt, however, he himself escaped with minor cuts and bruises.

French Taxi-plane Disaster

THE French taxi-plane, piloted by M. Toupeau with four passengers, which left Amiens for Havre on January 19 and which failed to arrive at its destination, was found, wrecked, at the foot of the cliffs at Bracquemont (near Dieppe) a few days later. The bodies of the pilot and three of the passengers were recovered, but that of the fourth passenger, Mme. Nicolle, was missing.

Dal Molin's Body Found

THE body of Maresciallo T. Dal Molin, who was killed in a crash on January 18, was found by a diver at a depth of 300 ft. in Lake Garda on Saturday, January 31. The body was found by a deep-sea diver named Franceschi, after three hours' searching under water. It was lying about 20 ft. from the spot where the same diver had found the wreck of the seaplane. Franceschi was too tired to raise the body himself, so a second diver went down to help him, and between them they brought it to the surface. It was then put in a fast motor boat and taken to Desenzano. Group-Captain Bradley, the British Air Attaché in Rome, attended the funeral of Warrant-Officer Dal Molin at Desenzano, and took with him three large wreaths, one from the British Air Ministry, one from the Commanding Officer and other officers at Calshot, and one from the N.C.Os. at Calshot.

Flying at Oxford

THE congregation of Oxford University at its session on Tuesday, February 4, passed a statute forbidding undergraduates to fly during term time except as members of the University Air Squadron. We hope to comment on this statute next week.

"Cutty Sark" Amphibian's Successful Trials

A TRIAL of the capabilities of the amphibian version of the Saro "Cutty Sark" (two "Cirrus Hermes") built for Australia by Saunders-Roe Limited was given at the Cowes Aerodrome of that company last week. The machine behaved excellently in landing and taking off. A "Bluebird" was flying at the same time and it was noted that the "unsticking" times and distances of the two aircraft appeared to be approximately the same. The amphibian "Cutty Sark" like the standard "Cutty Sark" incidentally is now being

turned out with longitudinal corrugations in the sides of the hull which improve the appearance and, of course, strengthen the hull as a whole.

U.S. Navy Orders More 'Planes'

THE U.S. Navy Department has awarded contracts for 36 two-seater "ships' planes" to the Chance Voight Corporation of Long Island.

Report on the Melbourne Crash

A MESSAGE from Melbourne says that the Air Investigation Committee has issued its report on the accident on January 6, when a Wackett Widgeon amphibian flying boat belonging to the Royal Australian Air Force crashed into Hobson's Bay and killed the three occupants—Capt. the Hon. Hugh Grosvenor, Flight-Lieut. Briggs, and Aircraftsman Ewen. The report states that the flight was "quite unauthorised" and was apparently undertaken to give Capt. Grosvenor instruction. There was no evidence of failure of the engine or the aircraft. The Air Board recommend the payment of £500 compensation to the widows of Flight-Lieut. Briggs and Aircraftsman Ewen, in addition to their husbands' superannuation payments.

Glider Launched from Airship

AN experiment in launching a glider from an airship was carried out at Lakehurst, N.J., on January 31. The glider was suspended from the keel of the *Los Angeles*, and when the latter reached an altitude of 3,000 ft. Lieut. R. S. Barnaby, U.S. Navy pilot got into the glider, which was then released. He descended in wide circles, and 13 minutes later made a successful landing in the snow.

Cricklewood Aerodrome Sold

CRICKLEWOOD Aerodrome, which until recently was used by Handley Page, Ltd., for test flying, etc., has been sold according to reports for over £100,000 by Messrs. Hallett. All test flying by Handley Page, Ltd., is, of course, now carried out at the aerodrome at Radlett.

Assistant Private Secretary to Lord Thomson

THE Air Ministry announces:—The Right Hon. Lord Thomson, P.C., C.B.E., D.S.O., Secretary of State for Air, has appointed Mr. I. V. H. Campbell to be his Assistant Private Secretary, in place of Mr. P. J. Oldfield, promoted.

Flt.-Lieut. D'Arcy Greig Married

FLIGHT-LIEUT. D. D'ARCY A. GREIG, D.F.C., A.F.C., was married on Saturday, February 1, at St. Barnabas' Church, Bexhill, to Miss Lorna Dean. The bride wore ivory georgette with a Brussels net veil. The four bridesmaids, Miss Mary Cunningham, Miss Betty Kirton, Miss Muriel Holford, and Miss Barbara Davies, wore long dresses of pastel blue velvet, trimmed with grey pearls, and blue felt hats. They carried narrow muffs of blue velvet, trimmed with grey fur. Flight-Lieut. A. E. Beilby was the best man. Flight-Lieut. Atcherley was also present. We need scarcely recall that Flight-Lieut. Greig established the British high-speed record of 319½ m.p.h. in November, 1928, or that he flew the Supermarine-Napier S5 in the Schneider contest of 1929, and gained third place. He is under orders for Iraq next month and his wife will go out with him. FLIGHT very heartily offers them its best wishes for their future happiness.

Air Vice-Marshal Sir Philip Game

THE King has approved the appointment of Air Vice-Marshal Sir Philip Game, G.B.E., K.C.B., D.S.O., *p.s.c.*, to be Governor of the State of New South Wales, in succession to Admiral Sir Dudley De Chair, whose term of office will shortly expire.

Sir Philip Game, who was born in 1876, entered the Royal Artillery in 1895 and saw service in South Africa in 1901 and 1902. He served in the Great War, being mentioned in dispatches six times. He was also made C.B. and awarded the D.S.O. From 1919 to 1922 he was Director of Training and Organisation at the Air Ministry; from 1922 to 1923 he commanded the R.A.F. in India; and from 1923 to 1928 he was Air Member for Personnel on the Air Council. He was made Air Vice-Marshal in 1922 and K.C.B. in 1924. He retired on January 1, 1929.

The State of New South Wales is the home of a very active flying movement, and the light aeroplane club in Sydney is one of the most progressive of such clubs in the Dominions. The appointment of a retired Air Vice-Marshal as Governor of the State is sure to give an added impetus to the movement. The Governor-General of Australia, Lord Stonehaven, is also an ex-officer of the Royal Air Force, but did not attain the rank of Air Vice-Marshal. Possibly he may once have been under the orders of Sir Philip Game. If so, the positions will now be reversed.

"AVRO *versus* ZEPP"

THIS is the main attraction of the new American attempt to thrill the public through the medium of the talking picture. Placards announcing the "Sky-Hawk," as the film is called, use this as their reason for foisting such a production on us.

Thrills there are, and admittedly they are of the kind which will probably go down well with the general public; but to those who know the first thing about aircraft and the history of the war, to read that "America's screen victory in the air is overwhelming, and in the 'Sky-Hawk' she has crowned it," as one critic has written, is sheer rubbish. America is undoubtedly supreme in this type of film, but the "Sky-Hawk" is a very poor example of what they can do.

Throughout, the technical errors make the whole thing a farce, and quite nullify the effect of the general story, which is reasonably good.

The story is roughly that of a cadet whom we see learning to fly, and who is to leave for France in two weeks' time. Exigencies of the Service, however, make it necessary for him to do so at short notice, and the day he has to leave is the day of his wedding, so he "borrows" a machine and flies over to see his fiancée, and on his return crashes. The story that he crashed in order to remain in England is thereafter spread around, and he is branded as a coward. As a result of the crash he is apparently paralysed in both legs, for we see him using a wheel-chair. The inevitable American idea of the faithful but beery English sergeant is worked up, and this individual helps our hero to steal a condemned machine from an aircraft factory (engine and all!). This machine they fit up complete with machine-gun and, when one night a Zeppelin comes over, the machine is brought out and, with four gallons of petrol in the tank, and a pilot

with paralysed legs in the cockpit, it takes off. The inevitable sequel follows, and after a terrific (?) fight, the airship falls in flames, after which our paralysed pilot regains the use of his legs sufficiently to walk up the aisle with his bride.

Criticism is always easy when it is merely destructive, but when the producer is specially chosen for having been in London during air raids, and has an assistant in one who was attached to the anti-aircraft defences of London; and, finally, when the technical adviser is actually a German officer who took part in several Zeppelin raids, surely we are entitled to expect that all the details would be correct and in harmony with the better parts of the film. The scenes in London during the raid are good, and the majority of the airship scenes are quite convincing, while the anti-aircraft scenes are perfectly natural to anyone except the most critical, but the details of the aircraft interest in the film are lamentably silly. It seems incredible that this side should have been so poorly done when, at the same time, it is used as the chief attraction of the whole thing. Surely flying schools did not use American training machines of about 1927 for their work in England during the war? And the fact that the hero goes up in one machine and comes down in another type is the sort of slip that should be worn threadbare by this time.

Then the pseudo-Camel with which he makes his attack on the Zeppelin cannot even be admitted as such, but has to be called an Avro on all the hoardings. Just how he takes off on that occasion, from his father's parkland, on a dark night without even the aid of a car headlights, and, what is more astonishing, how he returns safely (after a long-drawn-out fight on four gallons on fuel!) is left to our imagination.

FIFTH INTERNATIONAL AIR CONGRESS

THE Fifth International Air Congress will be held at the Hague from September 1 to 6, 1930. The first congress of this sort was held in France in 1921 and was organised by the Chamber of Aeronautical Industries in Paris under the auspices of the French Government. The second congress was held in London in 1923 and was organised by the Royal Aeronautical Society. This congress was declared open by H.R.H. the Prince of Wales. The third was held in Brussels in 1925, and was organised by the Royal Aero Club of Belgium. The fourth met in Rome in 1927, and was organised by the Italian Government.

The Government of the Netherlands has asked the Royal Aero Club of that country to deal with the detailed organisation this year. A general committee has been formed as follows:—

President: Mr. J. F. de Vogel, president of the R.A.C. of the Netherlands.

Vice-presidents: Jonkheer I. L. van den Berch van Heemstede, vice-president of the R.Ae.C. of the Netherlands, and Mr. E. Th. de Veer, Chief of the Aviation Section of the Ministry of Waterstaat.

General Secretary: Col. H. Walaardt Sacré, Gen. Sec. of the R.Ae.C. Treasurer: Jonkheer P. O. H. Gevaerts.

These five form the executive committee, and will be assisted by five members of the general committee, namely:—Mr. A. Plesman, Director of the K.L.M.; Professor Dr. J.

Boeke, President of the Medical Committee of the R.Ae.C.; Dr. I. E. B. Wolff, Director of the Government Aerotechnical Research Institute; Mr. J. Wolterbeek Muller, President of the legal committee of the R.Ae.C.; and Baron C. R. T. Krayenhoff, President of the committee of aerial touring of the R.Ae.C.

The official languages of the Congress will be English, French, German, Italian and Dutch. The necessary interpreters for these languages will be provided by the Congress. Members desiring to speak in other languages are expected to arrange for their own interpreters.

The discussions of the Congress will be divided into five sections:—(A) Aerial Traffic, (B) Scientific and Technical Section, (C) Legal Section, (D) Medical Section, (E) Touring.

The Congress will be officially opened at the Hague on September 1. Sessions of the five sections will be held on the 2nd, 3rd, 4th and 5th. Various expeditions to places of aeronautical interest and a series of receptions in honour of the Congress are being arranged. The final banquet will be held on September 6.

Papers submitted should reach the Secretary of the Congress (3, Anna Paulownaplein, the Hague) before April 30, 1930. The papers should be in one of the above languages, and must be accompanied by abstracts of not more than 300 words, giving the author's conclusion. The abstract must also be translated into French.

IN PARLIAMENT

Minister's Visit to Continental Airports

THE Under-Secretary of State for Air, Mr. Montague, on January 29, in reply to Mr. Albery, said the Continental airports which he visited were those at Rotterdam, Amsterdam, Hamburg, Copenhagen, Malmö, Lübeck, Travemünde, Berlin, Dresden, Prague, Vienna, Munich, Nuremberg, Frankfurt, Cologne, and Brussels.

Airships

CAPT. HAROLD BALFOUR asked the Under-Secretary of State for Air if the Air Ministry charge a reproduction fee in respect of all photographs published of airship R 101; if so, what is the amount of revenue so derived to date from this charge; and whether this practice is customary in respect of all photographs portraying Government aircraft?

MR. MONTAGUE: The answer to the first and last parts of the question is in the affirmative, and to the second part that the amount received up to December 31, 1929, in respect of reproduction fees was £67.

MAJ. SALMON asked the amount of the estimate originally submitted to the House for the construction of R 101; what is its actual cost; and what was the actual total cost of R 100?

MR. MONTAGUE: As regards the first two parts of the question, the original estimate was a composite one for the whole airship programme of 1924, but the sum provided for the construction of R 101 may be put at approximately £300,000. Owing to the novel and experimental character of the

design, the time taken on construction proved materially longer than had originally been estimated, and in consequence, this figure had subsequently to be increased; and in the Air Estimates for 1929 a figure of £527,000 was given for this purpose. The figure of actual cost cannot yet be stated. As regards the last part of the question, I have no official information, but it has been publicly stated that the cost of constructing R 100 largely exceeded the contract price of £350,000.

R.A.F. Establishment

MR. MONTAGUE, in answer to Mr. O. Lewis, said the number of officers and men, all ranks, in the Royal Air Force in July, 1929, was 30,670. The first-line strength of the Royal Air Force at the date named was approximately 770 aircraft. There were no airships in commission; the two at present under trial are primarily intended for civil aviation.

Privately-Owned Aircraft

MR. MONTAGUE, in reply to Mr. Everard, said, apart from aircraft owned by Imperial Airways, Ltd., National Flying Services, Ltd., the light aeroplane clubs (subsidised and unsubsidised), flying schools, joy-riding and other profit-earning undertakings, there were 214 aircraft owned by 196 private owners on the register in this country on December 31, 1929. An approximate estimate of the number of privately owned aircraft on the same date in the United States of America was 540; in France, 70; in Germany, 100 and in Italy, 25.

THE ROYAL AIR FORCE

London Gazette, January 28, 1930.

General Duties Branch

G. Silyn-Roberts is granted a permanent commn. as a Pilot Officer with effect from Jan. 11, 1930, and with seniority of Jan. 11, 1929. (Substituted for *Gazette*, Jan. 21.) The following are granted temp. commns. as Flying Officers on attachment to R.A.F. (Jan. 12):—Lt. R.N.—O. F. L. Bullock, J. D. C. Little, J. H. M. Malcolm, H. Wright. *Sub-Lt.*, R.N.—G. B. S. Slater, W. G. C. Stokes. *Mate*, R.N.—L. E. Ricketts. *Lt.*, R.M.—W. S. North.

The following are granted temp. Commns. as Flying Officers on being seconded for duty with R.A.F. (Jan. 14):—Lt. N. H. Thompson, Sherwood Foresters; *Sec. Lt.* T. W. Walker, Royal Tank Corps. Pilot Officer on probation R. F. Williams, is confirmed in rank (Dec. 21, 1929). The following Pilot Officers are promoted to rank of Flying Officer (Dec. 29, 1929):—J. M. Israel, J. H. Brown, R. L. Bennet, G. W. J. Jarrett, R. C. W. Ellison, R. J. Hunt.

Squadron Leader D. Colyer, D.F.C., is seconded for duty with the Latvian Government (Jan. 1): Squadron Leader C. L. Scott, D.S.C., is seconded for duty with the British Advisory Staff in Chile (Jan. 15): Wing Commander W. G. P. Young, O.B.E., is placed on retired list (Jan. 25); Flying Officer R. W. Pilling resigns his short service commn. (Jan. 21).

Medical Branch

W. J. Cumming, M.B., Ch.B., is granted a short service commn. as Flying Officer for a period of three years on the active list with effect from and with seniority of Jan. 13; Lt. M. J. Pigott (General List, Army, Dental Surgeon) is granted a temp. commn. as Flying Officer (Dental) on attachment to the R.A.F. (Jan. 9); Flight Lt. M. J. O'Reilly, L.D.S. (Capt., Army Dental Corps) relinquishes his temp. commn. on return to Army duty (Jan. 9).

Memorandum

Maj. E. G. H. Clarke, M.C., East Surrey Regt. (formerly seconded R.A.F.), is permitted to retain the rank of Lt.-Col. on retirement from the Army (Jan. 27).

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The following Pilot Officers are promoted to rank of Flying Officer:—G. D. Emms, E. J. B. Langhorne, S. M. Thompson, T. D. Trouncer (Jan. 23) G. G. W. Farquharson (Jan. 24). The following Flying Officers are transferred from Class A to Class C:—D. G. R. Lord (Jan. 25); C. W. Switzer (Jan. 10).

AUXILIARY AIR FORCE

General Duties Branch

No. 603 CITY OF EDINBURGH (BOMBER) SQUADRON.—Flying Officer W. O. B. Winkler resigns his commn. (Dec. 9, 1929).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Flight Lieutenants: J. D. Breakey, D.F.C., to 205 Sqdn., Singapore; 7.1.30. R. D. McE. Hart, to 205 Sqdn., Singapore; 7.1.30. L. G. Nixon, to Central Flying Sch., Wittering; 27.11.29. H. Stafford, to Station H.Q., Upper Heyford; 15.12.29. J. Oliver, A.F.C., to No. 3 Sqdn., Upavon; 6.1.30. J. L. Kirby, to Station H.Q., Hendon; 5.1.30. J. L. Airey, D.F.C., to Sch. of Photography, S. Farnborough; 1.1.30. H. F. Jenkins, to No. 1 Sqdn., Tangmere; 11.1.30. R. P. P. Pope, D.F.C., to Home Aircraft Depot, Henlow; 1.1.30. W. H. Jinman, M.B.E., to No. 209 Sqdn., Mount Batten; 15.1.30. E. S. Burns, to R.A.F. Staff Coll., Andover; 25.12.29. J. M. Glaisher, D.F.C., to No. 10 Sqdn., Upper Heyford; 16.1.30. D. A. Boyle, to R.A.F. Coll., Cranwell; 16.1.30. O. R. Gayford, D.F.C., to R.A.F. Staff Coll., Andover; 20.1.30. C. F. Horsley, M.C., to R.A.F. Staff Coll., Andover; 20.1.30. G. Martyn, to R.A.F. Staff Coll., Andover; 20.1.30. C. R. Davidson, M.C., to R.A.F. Staff Coll., Andover; 20.1.30. H. D. O'Neill, A.F.C., to R.A.F. Staff Coll., Andover; 20.1.30. E. I. Bussell, to R.A.F. Staff Coll., Andover; 20.1.30. G. M. Bryer, O.B.E., A.F.C., to R.A.F. Staff Coll., Andover; 20.1.30. A. B. Ellwood, D.S.C., to R.A.F. Staff Coll., Andover; 20.1.30. S. D. Culley, D.S.O., to R.A.F. Staff Coll., Andover; 20.1.30. J. W. Baker, M.C., D.F.C., to R.A.F. Staff Coll., Andover; 20.1.30. D. H. Humphreys, to R.A.F. Staff Coll., Andover; 20.1.30. G. M. Knocker, to R.A.F. Staff Coll., Andover; 20.1.30. A. P. Davidson, to R.A.F. Staff Coll., Andover; 20.1.30. C. A. Bouchier, D.F.C., to R.A.F. Staff Coll., Andover; 20.1.30. R. E. Meek, to R.A.F. Depot, Uxbridge; 20.1.30. C. C. Bazell, to H.M.S. *Furious*; 20.1.30. N. A. P. Pritchett, to Base, Gosport; 12.1.30. A. H. Paul, to Air Ministry (Dept. of A.M.P.); 20.1.30. R. S. Bruce, M.B.E., to No. 1 Flying Training Sch., Netheravon; 20.1.30.

Flying Officers: T. P. P. F. Fagan, to H.M.S. *Glorious*; 7.1.30. G. E. G. Leywood, to H.M.S. *Glorious*; 7.1.30. L. C. Barling, to Central Flying Sch., Wittering; 28.12.29. W. E. Barnes, to Supt. of R.A.F. Reserve, Hendon; 22.12.29. C. McK. Grierson, to 205 Sqdn., Singapore; 7.1.30. J. W. Smith, to No. 2 Armoured Car Co., Middle East; 10.1.30. G. K. Horner, to Aircraft

Depot, India; 19.11.29. P. J. H. Halahan, to R.A.F. Depot, Uxbridge; 10.12.29. C. S. John, to 33 Sqdn., Eastchurch; 13.1.30. J. H. McN. Campbell, to R.A.F. Base, Calshot; 14.1.30. L. W. W. Modley, to 445 Flight, Mediterranean; 7.1.30. A. D. Jaffe, to 460 Flight, Mediterranean; 7.1.30. D. J. Stewart, to R.A.F. Base, Gosport; 1.1.30.

Pilot Officers: C. Ryley, to No. 209 Sqdn., Mount Batten; 15.1.30. On appointment to a Permanent Commn. from the R.A.F. Coll., the undermentioned Pilot Officers are posted as stated below:—A. Earle, to No. 100 Sqdn., Bicester; 14.12.29. G. R. A. Elsmie, to No. 43 Sqdn., Tangmere; 14.12.29. F. F. Wicks, to No. 2 Sqdn., Manston; 14.12.29. J. Heber Percy, to No. 43 Sqdn., Tangmere; 14.12.29. R. L. Wallace, to No. 17 Sqdn., Upavon; 14.12.29. E. S. Drury, to No. 3 Sqdn., Upavon; 14.12.29. W. Sawyer, to No. 41 Sqdn., Northolt; 14.12.29. B. A. Fraser, to R.A.F. Base, Calshot; 14.12.29. W. H. Kyle, to No. 17 Sqdn., Upavon; 14.12.29. W. N. McKechnie, to R.A.F. Base, Calshot; 14.12.29. P. Heath, to No. 25 Sqdn., Hawkinge; 14.12.29. A. G. Teideman, to No. 111 Sqdn., Hornchurch; 14.12.29. G. F. W. Heycock, to No. 111 Sqdn., Hornchurch; 14.12.29. L. W. C. Bower, to No. 100 Sqdn., Bicester; 14.12.29. R. V. McIntyre, to No. 19 Sqdn., Duxford; 14.12.29. B. H. Jones, to No. 29 Sqdn., North Weald; 14.12.29. J. Grierson to No. 12 Sqdn., Andover; 14.12.29. J. Y. Humphreys, to No. 2 Sqdn., Manston; 14.12.29. E. F. J. L'Estrange, to No. 4 Sqdn., S. Farnborough; 14.12.29. J. K. Brew, to No. 99 Sqdn., Upper Heyford, on appointment to a Short Service Commn. (on probation); 4.1.30. G. Ap Silyn-Roberts, to No. 2 Flying Training Sch., Digby, on appointment to a permanent Commn. 11.1.30. J. D. H. Slade, to Base, Gosport; 12.1.30. The undermentioned Pilot Officers are posted to No. 2 Flying Training School, Digby, with effect from 11.1.30:—C. E. Alven, D. J. Alvey, W. B. Bailey, J. Bamber, E. V. N. Bramley, R. A. Byrne, M. G. C. Chadwick, H. F. Chester, A. R. T. Coke, C. W. W. S. Conway, L. E. Dalrymple, E. Elgey, C. J. Farrell, E. M. Gurney, G. J. Holland, D. Holt, L. W. V. Jennens, A. W. R. Lawson, R. P. J. Leborgne, N. S. Lesmere, D. W. Lucke, R. A. McMurtree, R. J. R. H. Makgill, W. R. Ottewill, W. C. Pitts, W. T. Ratcliffe, B. P. Reynolds, H. W. Riley, A. C. Sant, L. E. B. Stonhill, M. F. Summers, W. B. Thompson, G. R. White, R. B. Whittingham, A. R. Swilson, F. Woodward, H. M. Chubb, with effect from 15.1.30.

R.A.F. SPORT

Hockey

Oxford University beat the Royal Air Force in the Parks at Oxford on January 29 by three goals to one. T. J. R. Dashwood scored all three goals for the University, and L.A./C. F. Connell scored for the R.A.F. The R.A.F. team was:—Cpl. C. Butler (Stannmore), Cpl. L. G. Beeton (Henlow), Cpl. Foreman (Sealand), L.A./C. L. R. Hobbs (Uxbridge), Sergt. W. M. Maher (Upavon), L.A./C. G. Adamson (Cranwell), Flying Officer N. M. Jerram (Halton), A./C. Williams (Henlow), L.A./C. F. Connell (Gosport), Flying Officer S. C. Bufton (Bicester), and Flight-Lieut. H. N. Hampton (Digby).

Fencing

The Royal Air Force F.U. defeated London University F.C. by 15 victories to 12 in a three-weapon match at Bertrand's Academy on January 29. The outstanding fencer was Sergt. Hancock.

Foil

R.A.F.—Sergt. Hancock, 3 wins, no defeats; Flight-Lieut. O'Donnell and Cpl. Turner, each 1 win, 2 defeats. Total, 5 wins.

LONDON UNIVERSITY.—Delevoey, 2 wins, 1 defeat; C. P. Collins, 2 wins, 1 defeat; G. L. Stroud, no wins, 3 defeats. Total, 4 wins.

Epee

R.A.F.—O'Donnell, 3 wins, no defeats; Sergt.-Maj. Bradbury and Col. Eyles, each 1 win, 2 defeats. Total, 5 wins.

LONDON UNIVERSITY.—Collins and S. F. Smith, each 2 wins, 1 defeat; Stroud, no wins, 3 defeats. Total, 4 wins.

Sabre

R.A.F.—Hancock, 3 wins, no defeats; Bradbury and Flying Officer Worsley, each 1 win, 2 defeats. Total, 5 wins.

LONDON UNIVERSITY.—C. D. P. Collins, 2 wins, 1 defeat; Smith and Stroud, each 1 win, defeats. Total, 4 wins.

Rugby Football

R.A.F. v. NORTHAMPTON

On Saturday, January 25, Northampton beat the R.A.F. XV at Northampton by 2 converted goals, 2 dropped goals, and 1 try (21 points) to 1 converted goal and 2 tries (11 points). In the first half the home team established a commanding lead. In the last 20 minutes of the game the R.A.F. made a great rally and played really well. The effort, however, came too late to affect the result.

R.A.F. v. LEICESTER

On Thursday, January 30, Leicester beat the Royal Air Force at Leicester

by a goal and 6 tries (23 points) to a goal and 2 tries (11 points). Several Rugby players are members of both the R.A.F. and the Leicester teams and have to make a difficult decision as to which of their comrades they will try to defeat. On this occasion two of the best known of the service players, Squadron Leader J. C. Russell, the scrum half, and Flying Officer George R. Beamish, who is about the best of the Irish international forwards, both played for Leicester against the service, and contributed not a little to the defeat of the R.A.F. The air force side did not play at all badly, and P./O. Llewellyn was very good indeed. But Leicester was better in the tight scrums, better at half back, and better at wing three-quarter. Fortunately for the R.A.F., the usual Leicester place-kick was absent, and only one of the seven tries was converted. The R.A.F. tries were scored by F./O. Hodder, P./O. Llewellyn, and Flt./Lt. Franks. The teams were:—

Leicester.—C. Manson; W. E. Farndon, H. P. Tyler, C. C. Beatty-Pownall and C. E. A. Flewitt; J. R. Auty and J. C. Russell; D. J. Norman, G. R. Beamish, S. H. Saunders, R. A. K. Weiner, N. T. Thorneloe, E. G. Coleman, H. Green, and P. S. Clarke.

Royal Air Force.—P./O. Ievers; F./O. Cotton, F./O. Pott, P./O. Llewellyn, and F./O. Hodder; Flt./Lt. Odert and P./O. Elsmie; P./O. Williams, P./O. Wallace, F./O. Beaumont, F./O. Constantine, F./Lt. Franks, Sgt. Hall, L. A./C. Maxwell, and P./O. McKechnie.

R.A.F. v. BEDFORD

On February 2 the Royal Air Force drew with Bedford at Bedford, each side scoring a goal from a try (5 points). The ground was heavy and it was a forward game, in which the Bedford pack had somewhat the advantage. Just before half time a Bedford forward scored a try near the posts and a goal was kicked. In the second half the R.A.F. defence was tested and proved sound. Then the service's Irishmen came to the rescue. Flt./Lt. Odert broke through and kicked across. F./O. Beamish picked up the ball and scored. P./O. Llewellyn kicked the goal. It is unfortunate for the R.A.F. that G. R. Beamish will have to play for Ireland next Saturday, and will not be available for the first of the inter-service matches, R.A.F. versus R.N. at Twickenham. The teams were:—

Bedford.—R. Eidsforth, back; J. White, N. T. Pryor, J. G. Cook, and L. A. R. Fensome, three-quarter backs; A. R. Jesty and R. Plewman, half-backs; H. W. Coward, W. H. Stapley, J. M. Bilham, R. Willsheer, E. A. Joy, F. Holmes, I. Evans, and A. Marshall, forwards.

Royal Air Force.—F./O. Ievers, back; F./O. White, F./O. Pott, P./O. Llewellyn, and F./O. Nash, three-quarter backs; F./Lt. Odert and P./O. Umslie, half-backs; P./O. Williams, P./O. Wallace, F./O. Constantine, F./O. Beamish, Flight-Lieut. Franks, Sgt. Hall, L.A./C. Maxwell and P./O. McKechnie, forwards.

AIR POST STAMPS

By DOUGLAS ARMSTRONG
(Editor of "The Stamp Collector")

AERIAL progress in the year 1929 is reflected in the largest number of new air-post stamps that has ever been issued in a similar period, totalling 240 distinct varieties. Fifty of these have been of a semi-official character and the remainder government issues. The British Empire contributed eight stamps only, from Australia, India and South Africa respectively. The greater proportion emanated from South and Central American countries in connection with the opening up of the new air lines linking the North and South American continents under the auspices of the Pan-American Airways, S.C.A.D.T.A. and subsidiary enterprises. These and the world flight by the airship "Graf Zeppelin" have provided the most important additions to the air post collection during the past twelve months.

Air post collecting itself has made big strides not alone in this country, but more particularly in America and on the Continent, with the result that values have increased beyond all expectation, and new high records been established at the sale of the "Steinmetz" and other important collections of air post material. The number of active aero philatelists has been augmented to a remarkable extent, so much so that arrangements are now being made to hold a First International Air Post Exhibition in Paris under the aegis of the Aero Club de France in November, 1930.

Forthcoming Air Stamps

The Spanish post office which abandoned the use of special stamps for aerial postage some years ago has decided to re-introduce a distinctive series for this purpose upon the preparation of which the national Mint at Madrid is at present engaged. Newfoundland, whence have come some of the rarest post provisionals is reported to be on the point of providing a permanent set in connection with the proposed regular air mail service in that Dominion. Other new issues of air stamps are impending in Chile, Honduras, Nicaragua, Paragay and Guadeloupe.

Latest Brazilians

Further additions to the new series of Brazilian air post stamps illustrating the rise and development of aerial navigation are to hand in denominations 50 reis blue green and 1,000 reis orange brown. The former vignette shows the monument to Father Bartolomew de Gusmao, one of the earliest pioneers of flight, with the date August 8, 1709. The hydroplane "Jahu" depicted on the 1,000 r. value is that in which the famous pilot J. Ribeiro de Barros arrived at Rio de Janeiro, on July 5, 1927.

Mysterious Air Stamps of Honduras

A certain amount of mystery surrounds a set of five alleged air post stamps of Honduras which recently found their way on to the market beautifully engraved by the American Bank Note Company of New York with a portrait of the aviator L. Garay; inset below a vignette of an aeroplane traversing a mountain range. They were intended to commemorate a projected flight by this airman from New York to Tegucigalpa, but although the attempt had been postponed the stamps were already obtainable in America, at what seemed, however, to be a somewhat exorbitant price. It is variously stated that these stamps have never seen the country of their supposed origin, or alternatively that a small supply has been sent there in order to invalidate the issue. The original 50 centavos value is found surcharged with varying premia remia in black, the proceeds of which are understood to be intended to provide a fund for the benefit of Garay's family in the event of his meeting with disaster. Pending production of more circumstantial evidence of the *bona fides* of this issue air post collectors will be well advised to exercise discretion.

Answers to Correspondents

A. DAVIS (Boston).—The route of the Japan-Corea-Manchuria air line, inaugurated on September 10, 1926, is Osaka-Keijo (Seoul)-Dairen (Port Arthur). I regret that I cannot put my hands on the full itinerary of the Japanese inland air mail service, at the moment. Glad you find these articles interesting.

Tool Catalogue

FRY'S, LTD., of Water Lane, E.C.4, have just issued a very comprehensive catalogue which should interest all those manufacturers of aircraft who desire to get the best value in small tools that they can. Enox brand saw blades are among the things particularly worthy of notice, these blades are made from the finest tungsten steel, and several

types are made to suit all kinds of work. It would be impossible here, to enumerate all the points of the tools supplied, but as tool engineers, Fry's Ltd., will supply information on any point not covered by their catalogue.

Navarro Safety Aircraft, Ltd.

MR. S. T. GLANFIELD, the well-known motor-cyclist, has joined the board of Navarro Safety Aircraft, Ltd., of Finsbury House, Blomfield Street, E.C.2.

To Achieve Eye Comfort

GOGGLES are a very necessary adjunct to a pilot's comfort, and a little extra care spent on their selection will be well repaid by the owner who will be able to "wear and forget" them. Those who are thinking of purchasing a pair should take a look at the display in the window of E. B. Meyrowitz, of 199, Regent Street. All types of goggles are shown, and a decorative effect is achieved with the help of the wind-tunnel model of the S.6, lent by Supermarine Co., and also by a wide selection of photographs of prominent users of these goggles.

THE MODEL AIRCRAFT CLUB (T.M.A.C.)

THE flying season of the Model Aircraft Club will begin on Saturday, March 1, at 2.30 p.m., on Wimbledon Common (near the Windmill), when a grand display of flying models will be held, including petrol, compressed-air, rubber-driven, heavy and light models. All members should make a special effort to be present. Will all members of the T.M.A.C., provincial or otherwise, make a note in their diaries that the first Saturday in the month is booked for competitions and displays under the T.M.A.C. Rules during 1930. Rules and full particulars of meetings will be published at an early date.

All communications should be addressed to the Hon. Secretary, A. E. JONES, 48, Narcissus Road, West Hampstead, London, N.W.6.

PUBLICATIONS RECEIVED

Transport Co-ordination. By K. G. Fenelon, M.A., Ph.D. P. S. King and Son, Ltd., Orchard House, Westminster, S.W.1. Price 6s.

Bristol Jupiter Series VIII and IX Aero Engines. Air Publication 1371. H.M. Stationery Office, Kingsway, London, W.C.2. Price 3s. 6d. net.

Squadron of Death. By Capt. Dick Grace. Constable and Co., Ltd., 10-12, Orange Street, W.C.2. Price 7s. 6d. net.

Economic Conditions of the Republic of Panama and the Panama Canal Zone. Report by A. D. Francis; and in the Republic of Costa Rica, by F. N. Cox. Department of Overseas Trade. H.M. Stationery Office, Kingsway, London, W.C.2. Price 2s. net.

Air Photography, Part II. Theory and Practice.—Air Publication 1355. H.M. Stationery Office, Kingsway, London, W.C.2. Price 4s. net.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. (The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

APPLIED FOR IN 1928

Published February 6, 1930

- 19,534. C. NEON LIGHTS, INC. Electric discharge devices. (302,643.)
28,470. H. R. GOHTESEN. Rotary i.c. engine. (323,753.)
30,314. F. W. CALDWELL. Screw propeller. (323,828.)
34,560. A. A. MORENO. Variable-pitch air screws. (307,419.)
36,168. J. DE CHAPPELLE. Bearing and propelling and steering apparatus for aircraft operating by centrifugal force. (314,477.)

APPLIED FOR IN 1929.

Published February 6, 1930

- 7,635. H. JUNKERS. Arrangements for pumping liquid-fuel in connection with aircraft engines. (307,504.)
19,666. H. JUNKERS. Mounting of propellers. (315,218.)

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